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No. 1

RELICS OF EARLY MAN IN WESTERN SWITZERLAND

By D. I. BUSHNELL JR.

During the winter of 1853, as a result of the extremely low stage of the water of the Lake of Zürich, much of the bottom of the lake along the shores and in the shallow bays was exposed to view. In places groups of piles were noticed extending above the mud and sand. An examination led to the discovery that these had been the supports of ancient habitations, and search among them brought to light many implements and weapons of prehistoric origin. This led to the examination of the shores of other lakes throughout Switzerland, which resulted in the discovery of numerous ancient sites, including many on the lakes of Geneva, Morat, Bienne, and, probably the most important of all, Neuchâtel.

It soon became known that there were made "stations," dating from both the Stone and the Bronze age, on the margin of the Lake of Neuchâtel, but the depth of water made it very difficult to explore them, consequently very little work was done until some years later. Six years after the discoveries on the Lake of Zürich, while a railway embankment was in process of construction near the village of Concise, on the southwestern shore of Neuchâtel, the dredging of sand and mud from the bottom of the bay brought to the surface many implements and utensils as well as vast quantities of broken piles, revealing the site of an extensive settlement. The great number of objects recovered at that time and also as the result of subsequent explorations, now preserved in various collections and museums in Europe and America, are evidence of the importance of the settlement in prehistoric time. Concise has since

become one of the best known of the many stations on the Lake of Neuchâtel.

In 1877 the construction of a canal and the changing of the outlet of the lake resulted in the permanent lowering of the water more than three meters. This caused many more sites to be exposed, and the great number of objects collected at that time is beyond conception.

According to the Swiss archeologists there are on the margin of the Lake of Neuchâtel :

- 44 stations of the Stone age (Neolithic),
- 1 station of the Transition period (Encolithic),
- 24 stations of the Bronze age,
- 1 station of the the Iron age,

making a total of seventy stations on a single lake a little more than twenty miles in length. But in reaching this conclusion they seem to have counted as distinct sites what appear to be only parts of a large settlement. For example, in the bay of Auvernier they counted four stations within a space of about 700 meters, yet it is evident that these were contemporaneously occupied and should be considered rather as parts of one village. The separation of a settlement into groups of habitations would be a natural precaution against fire, especially when the huts were constructed of wood and the coverings of thatch.

The stations of the Bronze age were built over deeper water and at a greater distance from the shore than were those of the earlier or Stone age. This is attributed to the possession of better tools, which enabled the builders to procure more easily the necessary piles; but it may also have resulted from necessity—to insure greater protection against attacks from the shore. The settlements during the later period were erected over five or six meters of water. Now, considering the piles to have extended about two meters above the surface of the water and to have been driven a meter or more into the sand or mud bottom, their total length must have approximated ten meters. Even with the improved and better implements, the construction of a platform covering several acres, upon which were erected the habitations, must have been an extensive undertaking. At that time a dense oak forest covered all the

hills and valleys and extended to the shores of the lakes. Probably the clearing made by the cutting of timber for the building of a village afterward served as the garden spot for its inhabitants.

As a result of the lowering of the lake level, the earlier or oldest sites, which were built in comparatively shallow water a short distance from the shore, are now high and dry. Many piles may yet be seen, some on shore but more along the margin of the water. In the bay of Auvèrnier, at a distance of from 10 to 20 meters from the shore, they may be counted by the score. It is an interesting fact that since the lowering of the water the vegetation that has sprung up along the lake shore is more luxuriant on the sites of the ancient settlements than elsewhere.

The Stone and Bronze stations occur along the entire shore line, no part of it being occupied solely by the sites dating from one epoch. With the exception of a very few points the entire shore of Neuchâtel was well adapted to the purpose, the water being rather shallow for quite a distance from the shore. For the greater part the bottom is sandy, though in certain localities there are large glacial boulders.

The only known settlement on the shores of Neuchâtel during the latest or Iron age was situated near the northeastern end of the lake, at the end of the water course known as La Tène, leading to the Lake of Biennè. The greater part of the site, which was rather extensive, has already been explored and many objects, including weapons and ornaments, utensils and implements, have been recovered. A very interesting collection is preserved in the museum at Neuchâtel, while other specimens have gone to enrich various collections in Europe and America. The material from La Tène was described by Vouga in 1885,¹ and in the following year by Dr Gross.² Both works contain many plates showing the most important of the numerous interesting objects discovered on the site prior to that time.

Like the settlement on Neuchâtel, the only known village during the Iron age on the shore of the Lake of Geneva was situated at the outlet of the lake, on the site of the present city of Geneva.

¹ *Les Helvètes à la Tène, Notice Historique*, par E. Vouga, Neuchâtel, 1885.

² *La Tène: Un Oppidum Helvète*, par Victor Gross, Paris, 1886.

The selection of these sites may have been a coincidence, but they were probably chosen for a definite reason.

THE STONE AGE

The stone implements, weapons, and ornaments recovered from the numerous sites on the Lake of Neuchâtel show in many cases a high degree of workmanship. The majority of the polished implements appear to have been made from natural pebbles, the hardest and toughest variety of stone being selected for the purpose. The theory is still held by certain Swiss archeologists that all the jade or nephrite used in making implements was brought from Asia. Nothing however could be more out of reason, for pebbles of nephrite have been found along the foot of the Alps. Nephrite is but one of the many hard materials used in the making of implements, and probably in no part of the world was a greater variety utilized.

As the southern part of the Lake of Neuchâtel belongs to the canton of Vaud, the majority of the objects discovered on the stations in that section have been deposited in the Musée Cantonal Vaudois in the city of Lausanne. The collection is very rich and complete, especially in implements of bone and stone remaining in the original handles of wood or antler—in some cases a combination of both. Of particular interest is a series of celts hafted in wooden handles. These may be separated into five distinct types: In the first and most primitive the celt is set directly into the wooden handle; in the second there is a short socket or foreshaft of antler between the celt and the handle; in the next type the celt is set into a section of antler perforated to allow the handle to pass through; while in the fourth type this is reversed, the antler foreshaft passing through a perforation in the handle. In some cases a large piece of antler served as the handle, the celt being set directly into it; this may be considered as the fifth and last type.

The first two are the more common types; the third is one of the rarest in Switzerland, although it occurs in France and elsewhere in central Europe.¹ Four forms of the first type are shown in figure 1, from sketches made by the writer from specimens in

¹ Sir John Evans, *Ancient Stone Implements*, p. 161.

the museum at Lausanne. The handles average about 500 mm. in length. These specimens are of special interest as suggesting the method employed by the Indians of North America in hafting similar implements. That most interesting and probably unique specimen now preserved in the American Museum of Natural History, New York City, is similar to form c in figure 1. It was found in the bed of a brook near Thorndale, N. Y., in 1850. The wooden handle was probably thick and heavy, terminating in a large knob;

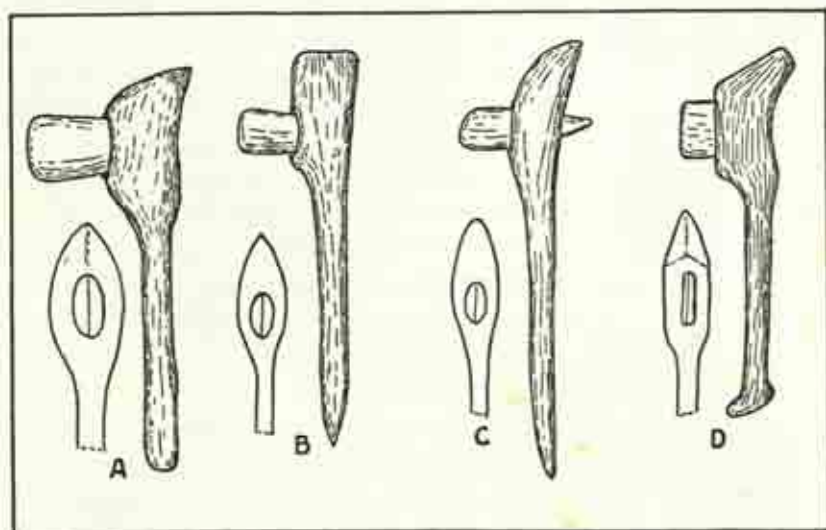


FIG. 1. — Four forms of the first type of mounted celts.

but during the many years it lay under water the wood gradually wore away until it assumed its present shape, as shown in figure 2.¹

Large celts mounted similar to form A are now used by the Guayaquil Indians of Paraguay, while form B closely resembles the mounted battle ax of the Kaingaud Indians of Brazil. Examples of both are in Professor Giglioli's collection in Florence and have already been figured and described by him.² A similar form of hafting is used by the natives of New Guinea. We may assume that in America the celt was mounted as an ax and not as an adz.

¹ I am indebted to Mr Harlan I. Smith, of the American Museum of Natural History, for a photograph of and information concerning this specimen.

² *Internat. Archiv für Ethnogr.*, suppl. zu Bd. IX, 1896, p. 25.

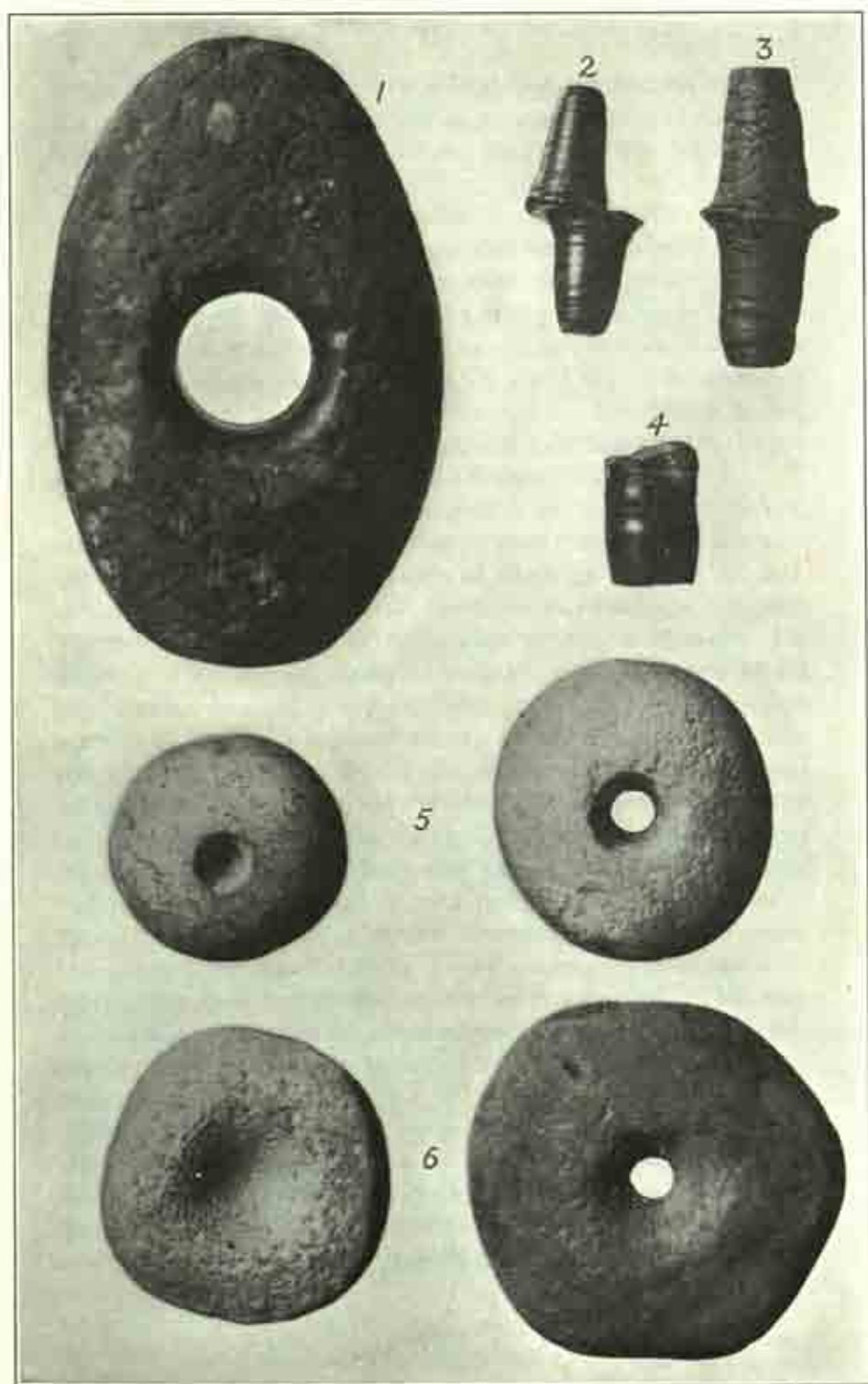
The perforated axes have been discovered in large numbers on the Neuchâtel sites. The great quantity of broken pieces that have been found is also remarkable; many were broken after having been finished, some during the process of boring — evidence of their having been made there. From the occurrence of numerous speci-



FIG. 2.—Celt in wooden handle from Thordale, New York.

mens in many localities is evident they were used during the late Neolithic through the Eneolithic, and continued to be made and used in even greater numbers during the Bronze age. For this reason it is difficult to consider them as having been true axes used for cutting. Having implements of bronze, more easily made and certainly more serviceable, it is improbable that any people would have continued the shaping and use of implements of stone. Nor could these implements have withstood hard usage. They should therefore probably be classed as battle axes, or club heads; as such they would have been effective weapons.

To attempt to describe the various types and forms of perforated axes from the stations on the Lake of Neuchâtel would require too much space. They range from the short, heavy, triangular, to the long type with flaring edge and formed into a knob or head at the opposite end. They were always made of hard material, often porphyry, granite, or quartzite; but apparently never of chert. There are several specimens in the Lausanne museum still retaining a portion of the original wooden handle driven securely into the perforation. Among the numerous examples in the Neuchâtel museum, none of which however retain the handle, is one of an unusual form that was found some years ago near Bevaix. It is of diorite, measures 180 mm. in length, is ground to a sharp edge at each end, and the four sides are flat with rounded edges. The cutting edges, if such they may be termed, are about 30 mm. wide and the ax in the center is 47 mm. in thickness. The perforation



PERFORATED OBJECTS FROM PREFARGIER, LAKE OF NEUCHÂTEL (Full Size)

1, By Hollow Drill. 5, By Solid Drill. 6, By Pecking.

which passes through the center is oval, and not circular as are all the others in the collection. The diameters of the opening are 15 mm. and 25 mm.; the longer follows the median line between the edges.

The interesting question, so often discussed, is, How were the perforations made? When a tubular drill was used a solid core was produced, as in the case of the modern diamond drill. Many of these cores have been found on the different sites, some of which are cylindrical, others conical. An interesting example of the latter found at Prefargier, near La Tène, on the Lake of Neuchâtel, is shown in plate 1, 2. This is the entire core. The boring having been made from the opposite sides, met near the middle, though overlapping, producing a core in the form of two cones.

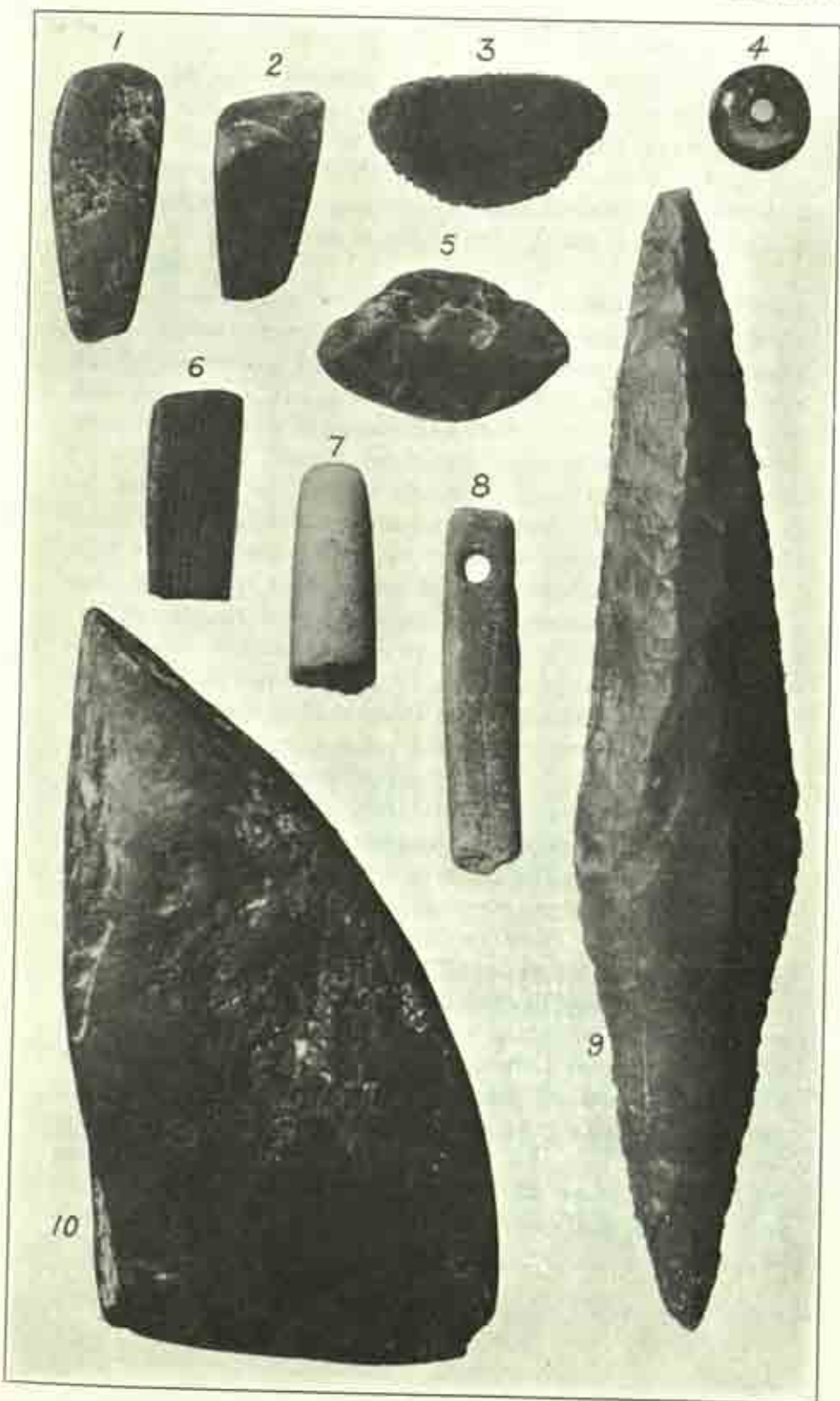
By experimenting I have been able to produce the same effect, although the material was much softer than that of which the axes are made. First a block of plaster of Paris, 44 mm. in thickness, and several cylindrical tubes of the same material were prepared. The latter, which served as drills, were 31 mm. in diameter; the diameter of the opening being 15 mm. made the thickness of the tube 8 mm. In drilling, dry sand was used. The boring was first made in one side to a depth of about 22 mm., then on the opposite side until the two met. During the process of boring the sand was fed to the drill from within the cylinder; this tended to wear away the core, causing it to assume the conical form. The core produced (pl. 1, 3) was of the same form and proportion as the one from Prefargier; the smaller end became just one-half the diameter of the opening in the drill. Another interesting result of this boring was the gradual wearing away of the outer surface of the drill, causing the hole to become smaller as it advanced. This may explain the occurrence of biconical perforations in many objects; whether the drill used was hollow or solid the effect would be the same.

Assuming the above to have been one method of perforation, what were the means employed? This question has often been discussed, and many are the theories that have been advanced in answer to it. I would suggest a hollow reed, or possibly a bone, used with sand and water; possibly small pieces of quartz could

have been attached to form a cutting edge. This simple drill without doubt would have produced the desired results, and the core would have been conical. The cylindrical core may be the result of a metal drill used during the Bronze age.

During the Neolithic age man had three methods of perforating stone. The first was with the hollow drill, as already described; the second with a solid drill; the third and most primitive way was by pecking or pounding the objects, usually on the opposite sides, until the hole was produced. In plate 1 are shown examples of objects perforated by the three distinct methods. The perforation in the club head (1) in the upper part of the plate was undoubtedly made by means of a hollow drill. Nos. 2 and 4 are stone cores from similar implements. Below these (5) are two natural pebbles showing the effect of a solid drill. The specimen on the right is perforated, the perforation being slightly biconical, the result of boring from opposite sides; the one on the left was not completed, the drilling on each side being in depth less than one-quarter the thickness of the pebble. The specimens numbered 6 are examples of the third method of perforating, namely, pecking or pounding the stone until the hole was formed. On the left is shown an unfinished piece, while that on the right is perforated. In these examples an equal amount of pecking had been done on both sides.

While the celt and the perforated ax are numerous, the grooved ax is the rarest of objects. There is one in the Neuchâtel museum, supposed to have been found on the station near Bevaix; but there appears to be some doubt about it. It is the only specimen of its kind in Neuchâtel, and there are none in the Lausanne collection; but there are three examples in the Musée de la Ville de Chambéry, France that were found at a station in the Lake of Bourget, near Aix-l Bains, and only a short distance south of the Lake o Geneva. There seems to be no doubt as to the authenticity of these. They are of the ordinary form of grooved ax, about 150 mm. in length, and would readily pass for specimens from the Mississippi valley. The groove passes entirely round all three, and in this respect as well as in general form they also closely resemble the few specimens from southern Italy preserved in the Kircheriano Museum in Rome.



IMPLEMENTS OF STONE AND AMBER BEAD FROM PREFARGIER, LAKE OF NEUCHÂTEL (Full Size)

The adz is another type of implement that is rare in Switzerland. One in its original wooden handle is in the museum at Lausanne. The blade is about 200 mm. in length and the cutting edge about 40 mm. in width. The blade passes entirely through the handle, which is about 500 mm. in length and not unlike form c in figure 1, except that the cutting edge is placed at a right angle to the handle.

The arrowpoints, which usually were made of chert, include several distinct types, but comparatively few specimens are found and the museums possess very small collections. In attaching the stone point to the shaft a notch was made into which the point was fitted and held with bitumen. There are several such specimens in the collections. There is also in the Lausanne Museum an antler tip, similar to the American specimens, about 50 mm. in length, which may have been a point for an arrow. But if this form of point had been widely used in Switzerland more examples would undoubtedly have been discovered on the various sites.

The chipped saws, or knives, are numerous, and many specimens in their original handles, some of wood, others of antler, have been found on various sites. These have often been figured and described. While at Prefargier I procured a very interesting small saw made of dark green jade; it is oval in form, 35 mm. in length and less than 2-mm. in thickness (pl. II, 3).

The chipped daggers, while inferior in workmanship to either the Danish or the Italian weapons, are the most interesting of the chipped objects found in the lakes. The largest example in the Neuchâtel museum, which with many smaller ones was found near Bevaix, is 225 mm. long and 34 mm. wide. There are two extremely interesting specimens in Lausanne which were recovered from the station at Chevroux on the Lake of Neuchâtel at the time the lake was lowered. They are of particular interest as they retain portions of the original wrapping which served as the handle. These and many other rare objects were illustrated in an album published by the Lausanne Museum in 1896 under the title *Antiquités Lacustres*.

The daggers were of two types. In the first only one end was chipped to a point; in the second and rarer type both ends were

pointed. Plate II, 9, shows a very good example of this type; it is of translucent yellow flint and was found at Prefargier. In the same plate, 1, 2, 6, and 7 are typical examples of the small chisel. The first three are of a dark green jade or nephrite, and the fourth is a light bluish-green quartzite. The very beautiful example of an amber bead (4) is a comparatively rare specimen. The triangular cutting implement (10) is made of a dark mottled jade; it was probably never mounted, but was used in the hand; the shortest side is ground to an edge which has remained remarkably sharp. Figure 8 of the same plate is a perforated pendant, made of a soft material, from the same site.

During the Stone age bone and antler were also extensively used for making ornaments and implements of various sorts. Some interesting examples are figured in plate III. Nos. 1, 2, 3, and 5 are forms of bone chisels having one sharp edge. Nos. 6 and 7 may be classed as perforators. The long curved object (4) is called a hair-pin or ornament, but it is difficult to say for what purpose it was designed. The cylindrical projection at the side is perforated. The object is highly polished from use, and appears to be a very rare type, as only one or two similar specimens are in the Lausanne collection. The harpoon head (8) is of antler.

THE ENEOLITHIC OR TRANSITION PERIOD

The Eneolithic or transition period between the Neolithic and Bronze ages is not clearly defined on Neuchâtel, and if such a period actually existed it was of brief duration. There are but fourteen objects in the Neuchâtel museum that are regarded as having been made of copper without an alloy, while there are probably as many hundreds made of bronze. In form they do not differ; all appear to have been made during the same time. In mixing the metals a greater or less quantity of tin was used, for it is not reasonable to suppose that with the primitive means and methods then in use it was possible to have always the same proportions. If, then, some object happens to contain a very small percentage of tin, or if the alloy is entirely lacking, why should those objects be considered to have been made during a distinct period?



OBJECTS OF BONE AND ANTLER FROM PREFARGIER, LAKE OF NEUCHÂTEL (Full Size)

THE BRONZE AGE

The vast numbers of bronze objects that have been recovered from the twenty-four stations of the Bronze age on the margin of the Lake of Neuchâtel show the great skill and ability of the makers. In workmanship, form, and decoration they cannot be surpassed in any other part of Switzerland. Axes of various types, javelins and arrows tipped with bronze points, and thin-bladed swords and daggers of bronze were the principal weapons of that era.

The narrow, curved knives, often decorated with incised lines forming various designs, are quite numerous, many having been found still attached to their original antler handles. The massive, highly decorated bracelets and pins or hair ornaments, large buttons and needles, pendants, rings, and many other objects, all of bronze, that have been found in great quantities are now to be seen in many museums and collections.

Probably the rarest and most interesting bronze objects are the large kettles and bowls (*situlae*) which appear to have been made of a single piece of metal hammered into shape. There are several such bowls in the Lausanne collection, well formed and beautifully decorated; they average about 200 mm. in diameter and 60 mm. in depth. During April of the present year (1905) two large bronze kettles, 250 mm. in diameter and depth, were found near Cudrefin, across the lake from the city of Neuchâtel. Both are without decoration of any sort. Having handles for suspension, they probably served as cooking utensils.

During the same period the art of pottery making became greatly improved. The rough undecorated ware of the earlier epochs was no longer made except as cooking vessels, and the characteristic examples of the potter's art during the Bronze age are rather small cups and bowls, well shaped and often elaborately decorated with incised lines in geometric patterns. Many entire specimens have been recovered from the ancient site near the present town of Corcelette on the Lake of Neuchâtel. From the same site were taken a few pieces of ware decorated in red, cream, and black. Another method of decorating the smaller pieces was by attaching narrow strips of tin, usually about 5 mm. in width, in simple geo-

metric patterns, to the surface, often as a border near the mouth or edge. There are a number of specimens decorated in this manner in both the Neuchâtel and Lausanne collections. It has not yet been ascertained by what means the tin was attached, but the work was skilfully done, and after the lapse of many centuries often remains so firm as to appear a part of the vessel itself.

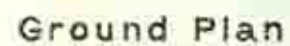
Fragments of pottery are numerous on many sites. Evidently few have been removed, as only entire pieces are sought and preserved. At the station near Haute-Rive, between Neuchâtel and Prefargier, the bottom of the lake for a distance of fifty meters or more was strewn with fragments of pottery and broken bones, with here and there an implement. On that site I collected some interesting pieces. The part still remaining under water was the outer edge of the settlement; the rest is now dry and covered with vegetation, the result of the lowering of the water.

THE IRON AGE

As has already been stated, there is but one Iron age station on the Lake of Neuchâtel, that at La Tène, which has been so thoroughly explored and has yielded so many objects, chiefly swords and spearheads.

Thus we have on the margin of this lake evidence of long-continued occupancy by man. Many centuries must necessarily have elapsed between the time the first settlements were made during the early Neolithic epoch and the final subjugation of Helvetia by the Roman army, when Aventicum, less than ten miles distant from the lake, became the Roman capital.

FLORENCE, ITALY.



Scale 1:100. Measurements in English feet and tenths (approximate). ————— Fairly well preserved. - - - - - Ruinous, but traceable. ··········· Conjectural: either totally ruined or not cleared.

A STONE RUIN AT SĚ-ŤSAK, GUATEMALA

By ROBERT BURKITT

This brief description and the accompanying diagrams are of a stone ruin at SĚ-ťsak, in the land of Sepacuitĕ, about four leagues east of the village of Senahũ, province of Alta Vera Paz, Guatemala, which was visited by the writer in 1896. The ruin blocks the summit of a narrow pass, and the woods in the immediate vicinity are of old growth, and not pines. The western approach, which is very steep, is cut square across by the outlying wall, at A in plate iv and figure 3. This wall, or stair, lies due north and south, or very nearly, and forms the edge of a sort of terrace behind the main

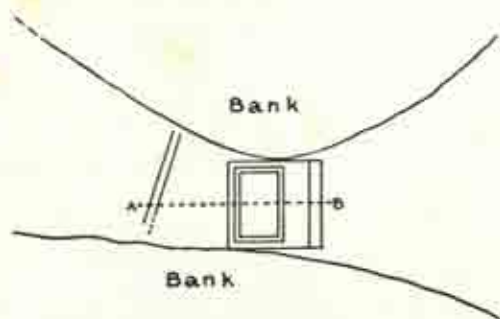


FIG. 3. — Situation of the ruin.

structure. The main structure is not parallel with that wall, but faces the opening of the wall on the other side; the pass shifts round at the top, as indicated in the figure. The banks are steep on both hands and abut against the sides of the structure to the height of the first platform, as shown by the profile L, M, in plate iv. At the front corners the space left between the receding bank and the side of the structure, on each hand, is filled across with tiers of stone, now covered with rubbish and not shown in the drawings.

The front of the ruin is sunk toward the middle, and the size of the steps is averaged. The front view of the main structure in outline, restored, is shown in plate v. The point of view is P, shown on the plan (pl. iv), fifteen feet from the base, on a line with the

side, and level with the top (c), the center of perspective—to be four inches from the eye.

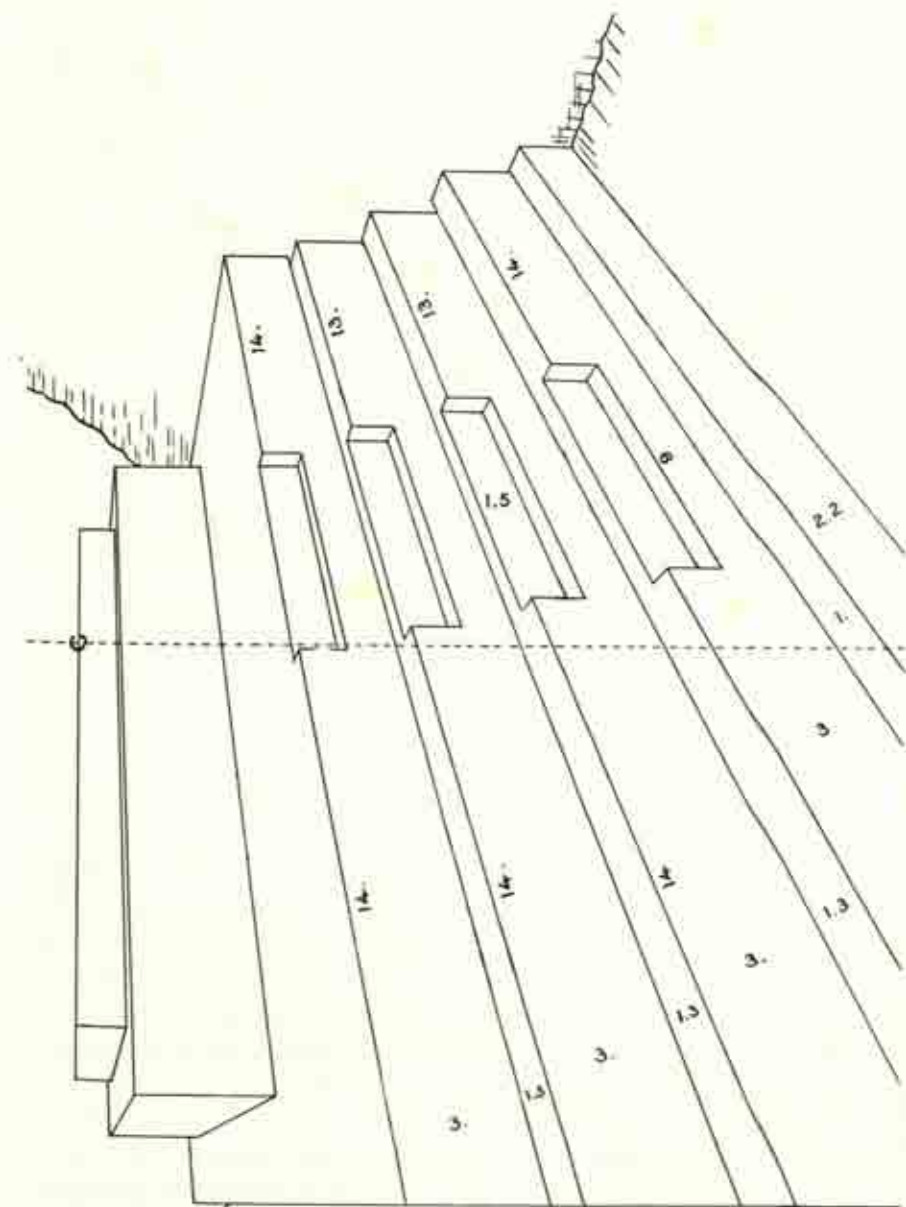
The stone of which the structure is built is limestone, and not hard. Squared stones are found only in the front, or easterly side, of the ruin, where the stones are larger than in other parts. The largest are not more than two and one-half feet long. No mortar was used. The interior was not explored. The back terraces appear to have been paved, at least along the foot of the main structure. The stair behind was probably much deeper than the present surface at A.

Measurements (in English feet)

Main structure.	Eastern side :	Total height, near B.....	14.2
		Length from north to south.....	37
		Width from east to west upper surface.....	35.3
		Height of lower terrace.....	2.2
		Height of four upper terraces.....	3
		Breadth of terraces.....	1.3
		Length of steps.....	9
		Height of steps.....	1.5
		Breadth of steps.....	.65
	Western side :	Height.....	6.5
		Base of main structure to western steps near A.....	29.5
		Height of two corner steps.....	2
		Height of third step.....	3
		Height of upper step.....	2
		From eastern end of main structure to base of upper structure.....	10.7
		From western end of main structure to base of upper structure.....	3.8
		From northern and southern banks to base of upper structure.....	3
	Upper structure :	Length of lower platform.....	31
		Width of lower platform.....	20.8
		Height of lower platform.....	4.8
		Length of upper platform.....	26
		Width of upper platform.....	15.7
		Height of upper platform.....	2
Width of terrace around base of upper platform.....		2.5	
Total height of ruin, eastern side.....		21	
Total height of ruin, western side.....		11.5	

SENAHU,

GUATEMALA.



FRONT VIEW OF THE MAIN STRUCTURE AT SE-TSAK, IN OUTLINE, RESTORED

CHEYENNE STREAM NAMES

By GEORGE BIRD GRINNELL.

In primitive America descriptive names were applied to physiographic features. A valley might be named from some animal abundant about it, a butte or a mountain from its shape, a river from the taste of its waters, from the trees that grew by it, or from some historical event that had happened near its banks; in other words, among the Indians each place-name had its meaning.

In the West these meanings have in some cases been preserved in translation—the only practical way, since the Indian term is often too long and its pronunciation too difficult for the average white man. Over much of the United States, however, place-names are to the last degree commonplace. Athens, Rome, and Utica for cities, Olympus and the Matterhorn for mountain peaks, Smith's river and Jones' creek everywhere are familiar enough.

The names given to geographical features by the Indians of different regions should be recorded, and I present here a number of names, with their meanings, given by the Cheyenne Indians to some of the rivers in the country over which they formerly ranged. This country extended from the Yellowstone southward to and beyond the Arkansas, and from the headwaters of the Platte and the Arkansas eastward to about where the North and South Platte unite and the Arkansas is met by the Cimarron. This was the country which the Cheyenne regarded as theirs—with the Black hills as its center—although it was constantly invaded by the Pawnee from the east, by the Blackfeet from the north, by the Crows, Ute, and Shoshoni from the west, and by the Kiowa, Comanche, and Apache from the south. The Arapaho, their friends and allies from very early times, occupied it in common with the Cheyenne.

In these names the word river (*ohé'*) commonly appears, but this is not always the case in Cheyenne, any more than in English.

It will be observed that in the case of certain rivers, as the Platte and the Canadian, the name of the main stream is carried up one of

the tributary branches to its head. It will also be noted that in several places there are streams of the same name in the country of the Northern and the Southern Cheyenne.

These stream names are offered for what they are worth, in the hope that the work may be taken up by other students in the Indian field.

MISSOURI RIVER: *Ē'ōmītā'i*, 'It gives (us, or the people) fat,' (*hē-yō'm*, 'fat'; *nā'mīt*, 'I give to him'). Usually translated 'greasy.' It is said that long ago, when the Cheyenne first reached Missouri river, they found on its banks many recently-drowned fat buffalo. They named the river from this welcome food supply.

Some of the Southern Cheyenne say that when they first saw the Missouri river it was rising, and that great masses or lumps of froth were floating down. This foam resembled the froth, *ī'tāv*, or *ītāw'i*, which formed in the water on their kettles, when boiling pounded bones to extract the grease—greasy = *ē-ōm'*—and the name was given to the stream from these masses of greasy looking foam.

It is said also that the name was given it because when they first reached the river they had found the branches on some of the trees greasy, because fat meat had been hung on them; hence 'greasy timber': *ēōm' + mātā'i*. The first derivation is probably the right one.

YELLOWSTONE RIVER: *Mōēhē'yōē*, 'Elk river' (*mōē*, 'elk' (*mōēhē* pl.), + *ōhē*, 'river'). So called by most of the northern plains tribes, from the abundance of elk found in its valley.

BIGHORN RIVER: *Ksaiyō'he*, 'Sheep river' (*kos*, 'a wild sheep' (*kōsān*, pl.), + *ōhē*).

LITTLE BIGHORN RIVER: *Ksaiyō'hēkīs*, 'Little Sheep river' (*kos*, 'a wild sheep' pl.; + *ōhē* + *kīs*, diminutive suffix).

TONGUE RIVER: *Wit'ānowi'yohē*, 'Tongue river' (*wit'ānowi*, pl. 'tongues,' + *ōhē*).

ROSEBUD RIVER: *Hinintyohē*, 'Roseberry river' (*hinē'nw*, 'rosebud' + *ōhē*). From abundance of wild rose bushes in its bottom.

POWDER RIVER: *Paiyō'hē*, 'Powder river' (*pai*, 'gunpowder,' 'coal,' or any black dust, + *ōhē*). So named from the seams of lignite along its banks. The word is said to have been used for coal (lignite) before gunpowder was known.

LITTLE POWDER RIVER: *Pa'yohēkīs*, 'Little Powder river' (as above, + diminutive suffix *kīs*).

CRAZY WOMAN'S RIVER: *Tūn'shināwīyōhē*, 'Foolish woman river'

(*tānshināhk'a*, 'foolish woman,' + *ohē'*). Many years ago a large village of Sioux, Cheyenne, and Arapaho were camped on this stream, when on the return of a successful war party a scalp dance was held, and in the enthusiasm and excitement certain women hitherto above reproach gave themselves up to the members of the successful war party.

Tānshināhk'ā means strictly a 'dandy,' a 'dude,' a well dressed or stylish person, male or female, and conveys also the idea of light-headedness, lack of balance, likelihood to do foolish things. It is not however like *māssā'*, a crazy female, nor like *māssā'nē*, crazy or foolish. The idea is not that these women permanently fell from grace, but merely acted foolishly, led away by excitement. The belief still exists that if a camp is made for any length of time on this river, some of the young women are sure to make run-away matches. The Cheyenne declare that the Sioux gave it this name, and it is so called by Cheyenne, Sioux, and Arapaho.

MUSSELSHELL RIVER: *Īkotowōm'iyō'he'*, 'Musselshell river' (*ihk'ō wōm*, 'musselshell' [*Unio*], + *ohē'*).

LITTLE MISSOURI RIVER: *Wōkathē'yāniō'hē*, 'Antelope-pit river' (*wōkar*, 'antelope,' + *hē'yān'*, 'pit,' + *ohē'*). It was on this river especially that the Cheyenne captured antelope in pitfalls.

WHITE RIVER: *Wōhk'pōm*: 'White water' (*wōhk'kōm*, 'white,' + *mā'pī*, 'water').

NORTH PLATTE RIVER: *Minnit'yohē'*, 'Moon Shell river' (*mān-nī*, 'shell,' i. e. 'moon shell,' circular white shell ornaments obtained from traders, + *ohē'*). It sounds also like Dove river, from *hēmīn'*, 'dove,' 'pigeon,' pl. *hēmīn'i*; and doves (*Zenaidura macroura*) abound on the North Platte river; but in making the sign for the stream all Indians make the sign for water and circular ornament. The first derivation seems the right one.

PLATTE RIVER. (Same as North Platte.)

SOUTH PLATTE RIVER: *Wit'ām'yohē'*, 'Fat river' (*wit'ān*, 'fat,' 'tallow,' + *ohē'*).

HORSE CREEK: *Mōhī'nāām'yohē'*, 'Horse river' (*mōhī'nāām*, 'horses,' + *ohē'*).

LODGEPOLE CREEK: *Oōhko'yohē'*, 'Lodge-pole river' (*hōōhk'*, 'lodge-pole,' + *ohē'*).

REPUBLICAN RIVER: *Mā'hōhēvā'ohē'*, 'Red Shield river' (*māhōhē'vā*, 'Red Shield,' + *ohē'*). So named because the young men were collected there for a meeting of the "Red Shield soldiers."

SOLOMON RIVER: *Māhki'nēōhē*, 'Turkeys creek,' or 'Creek of Tur-

keys' (*mäh'kī*, 'turkey' (*mähkī' nūō*, pl.), + *ohē'*). Tributary of Republican river. Named from the abundance of turkeys found on it.

SMOKY HILL RIVER: *Mānd'iyō'he'*, 'Bunch of Trees river' (*tsēmānot* 'grove' (of trees), + *ohē'*). So called because formerly at the stream's head there was a large grove of cottonwood trees, among which no underbrush grew.

ARKANSAS RIVER: *Mütsitsōōn'yohe*, 'Flint Arrowpoint river' (*mül'si-sō'ōn*, 'flint arrowpoint,' + *ohē'*). They once found there many manufactured flint arrowpoints. There is no flint stone in that country.

CIMARRON RIVER: *Hōtū'āō'hē*, 'Bull river' (*hōtū'a*, 'bull,' + *ohē'*). The name Bull river was given to this stream by the Comanche, Kiowa, and Apache, and adopted by the Cheyenne. The original name was *Nōātsi'ohē'* — a Sioux name and dance adopted by the Cheyenne — 'many pipe dance river,' referring to great pipe dances given there by various tribes. Up to forty years ago, it is said that the river was so called, and only in later times changed to Bull river. In telling stories the old men still refer to it by its ancient name.

NORTH CANADIAN: *Hōnīh'hīyō'he'*, 'Wolf river' (*hōnīh'*, 'wolf,' + *ohē'*).

SOUTH CANADIAN: *Māh'ōm*, 'Red water' (*ēmāhō*, 'red,' + *mā'pī*, 'water').

CANADIAN RIVER. (Same as South Canadian.)

WASHITA RIVER: *Oōhkō'yōhē'*, 'Lodge-pole river.' (See Lodge-pole creek, above.) Name said to have been given by the Kiowa and Comanche and adopted by the Cheyenne.

SWEETWATER RIVER (of the South): *Wtūhk'hīmāp*, 'Bitter water' (*wtūhk'hīen*, 'bitter,' + *mā'pī*).

RED RIVER (of the South): *Māh'ōm* (*Nām'hāstoh'*), 'Red water' ('Southern').

PUNISHED WOMAN'S FORK: *Āmāōhktst'yōhē*, 'Driven (back and forth) river' *nā'māōv*, 'I drive,' + *ohē'*). Tributary of the Smoky Hill river; scene of battle with Dull Knife's band, in which Colonel Lewis was killed. The name is given from a battle between Pawnee and Cheyenne about 1835, when the Pawnee finally chased the Cheyenne for a long distance along the banks of the stream. The word conveys the idea of driving back and forth alternately by either party to the battle, as was so much the custom in intertribal fighting.

FOUNTAIN RIVER: *Ē'ēstvūl'yōhē*, 'Boiling river' (*ē'ēstvūl'au*, 'it boils,' + *ohē'*).

MILK RIVER: *Sāp'iyō'he*, 'Little river' (*tskūi'*, little, + *ohē'*).

MUD CREEK: *Hēkō mā'yohē*, 'Miry creek' (*hēkō mā*, 'miry,' + *ohē*). Tributary of the Arkansas below Fort Lyon, Colorado.

STILLWATER CREEK: *Īhkkō mōō'yohē*, 'Greasy creek' (*e'ikom*, 'rich' or 'oily,' + *mōō*, 'grass,' + *ohē*). Tributary of Cimarron river in north-eastern Oklahoma. The Northern Cheyenne call this stream *Hēkō mōō'yohē*, with the same derivation, and apply the same name to Greasy Grass creek, a tributary of Little Bighorn river in Montana. The grass along this stream is said to look greasy, "as if a frying pan had been emptied on it." Horses get very fat on this pasturage.

NIORARA RIVER: *Hissē'yōō'yohē*, 'Sudden, or Unexpected, river,' 'Surprise river' (*hissē'yōō'vōv*, 'suddenly,' + *ohē*). It is said that the Cheyenne, crossing a wide flat on which there grew no timber or willows, were astonished when they came on the stream flowing through this flat. This is said to be the character of Niobrara river between the headwaters of Snake creek and White river to the north. Without this traditional explanation the name of the Niobrara might perhaps be translated 'Sandy river,' from *hissē'yōō'vōv*, 'sandy,' + *ohē*, 'river,' but the Cheyenne always explain this stream's name as given above.

YELLOWPAINT RIVER: *Hiyō'vūnī'yohē*, 'Yellowpaint river' (*v'hiōvōn*, 'yellow paint,' + *ohē*). Tributary of Purgatory river, in Colorado. The same name is given by the Northern Cheyenne to Muddy creek in Montana, a tributary of Rosebud river from the east.

LARAMIE RIVER: *Hin'ni'yohē*, 'Goose river' (*hī'nā*, 'goose,' + *ohē*).

HEART RIVER: *Histū'yohē*, 'Heart river' (*histsis*, or *histā*, 'heart,' + *ohē*). Tributary of the Missouri, near Mandan, North Dakota. The Northern Cheyenne call this stream *Histā'hāyo*.

RAPID CREEK: *Haiyō'yohē*, 'Rapid river' (*ihai'yo*, 'rapid,' + *ohē*). A tributary of Cheyenne river which rises in the Black hills. The Northern Cheyenne call this stream *Haiyō'hēmāp*, 'swift, or rapid, water.'

DEEP FORK: *Hiyō'tōiyohē*, 'Deep river' (*ihyēātām*, 'deep,' + *ohē*). Rises about 25 miles east of Fort Reno, Okla., and flows into the North fork of Canadian river. By some of the Northern Cheyenne this is called *Hāū'ētāmiyohē*, the derivation being the same.

MEDICINE LODGE CREEK: *Hōhkū'yohē*, 'Medicine Lodge river' (*hōhki'āyūm*, 'medicine lodge,' + *ohē*). Enters Beaver river about 25 miles west of Fort Supply, Okla.

MEDICINE LODGE CREEK (in Kansas): *Hōhkū'yohē'kis*, 'Little Medicine Lodge river' (as above + *kis*, diminutive).

BEAVER RIVER: *Hōmā'iyohē*, 'Beaver river' (*hōmā*, 'beaver,' + *ohē*).

Beaver and Wolf creeks unite a short distance below Fort Supply, forming the North fork of Canadian river. Another Beaver river runs into the Republican river from the south, flowing through northern Kansas.

ELM FORK (of the North fork of Red river): *Hōmīn'ō'yohe*, 'Elm river' (*hōmīn'ō*, 'elm,' + *ohē'*).

CHUG RIVER: *Hotū'āainā'ohē'*, 'Bull-falling-down river' (*hōtū'ā*, 'bull'; *ēhyana*, 'he falls,' + *ohē'*). Said to have been named from the fact that in 1846 a wounded bull, backing from an Indian about to shoot at him, fell over the bluff.

BRAZOS RIVER: *Ūhktō'wūš'yohe*, 'Trading river' (*nāūhktō*, 'I trade' or 'buy,' + *ohē'*). In ancient times the Cheyenne met the Comanche there for the first time. They met as friends and exchanged horses and clothing.

HACKBERRY CREEK: *Kō'kōmīn'oshē*, 'Where hackberries stand thick' (*kō'kōmīn'ō*, 'hackberry,' + *shē*, from *hīsh'lk*, 'earth,' 'ground,' a suffix of quantity denoting abundance of vegetation, of whatever kind; it signifies 'covered with,' or 'standing thick together.' Where used of streams where the vegetation indicated stands thick, the word *ohē'*, 'river,' is omitted, and the stream's name would be, as in the present case, 'where the hackberries stand thick.') This stream flows into the South Canadian about 15 miles east of Antelope hills.

BARNETT'S CREEK: *Kōnā'yohe*, 'Sick man's river' (*kōnhāns*, sick man, + *ohē'*). Konhais — here used as a proper name — was buried on a scaffold near the mouth of this stream. He was Red Moon's brother.

RED WILLOW CREEK: *Māhkōm'zhīsūniyohe*, 'Red Willow river' (*māhkōm'zhīs*, 'red willow' (actually a small dogwood), + *ohē'*). Enters the Republican just below Beecher's island.

KINGFISHER CREEK: *Mātsīn'yohe*, 'Kingfisher river' (*mātsīn'i*, kingfisher, + *ohē'*). A tributary of the Cimarron. This stream seems to be more commonly called 'Fish creek,' *Nōmā'hiyohe* (*nōmā'hē* + *ohē'*). There is a Kingfisher creek, as above, which enters the Platte not far from the present town of Fremont, Neb.

CHEYENNE RIVER: *Māitōmōn'ohē*, 'Red paint river' (*māitūm'*, 'paint,' + *ohē'*). The South Cheyenne river of Dakota; so called because of the abundance of red clay near its banks.

WILLOW CREEK: *Mīn'oshē*, 'Where willows stand thick' (*mīn'ōk*, 'willow,' + *shē*). A tributary of Medicine Lodge creek, in southern Kansas.

BOX ELDER CREEK: *Mīshkīmā'ohē*, 'Box-elder river' (*mīshkīmā*, 'ox-elder,' + *ohē'*). Tributary of Cheyenne river east of the Black hills.

MOREAU RIVER: *Mistai'yohe*, 'Owl river' (*mis'tai*, 'owl,' + *ohé*). Tributary of the Missouri, having its source northeast of the Black hills.

EAGLE CHIEF CREEK: *Mäiyün'ikamahk*, 'Medicine Wood (river)' (*mäiyün*, 'mysterious,' + *kä'mähk*, 'wood'). A tributary of the Cimarron from the north.

NORTH FORK OF RED RIVER (of Texas): *Mohkimis'sēvo*, 'Big Sand' (*mohk*, 'big,' + *hiss'yovo*, 'sand').

KNIFE RIVER: *Hovāt'ovon'ohé*, 'Sword river' (*hovāt'ovon*, 'sword,' + *ohé*). A tributary of the Missouri near Ft Berthold, North Dakota.

TULE CREEK: *Mohmistā'shē*, 'Where rushes stand thick' (*mohmistā's*, 'rush,' + *shē*). A tributary of Red river.

WALNUT CREEK: *Motāshē*, 'Where ash trees grow thick' (*mōtō*, 'ash,' + *shē*). A tributary of the Arkansas.

APIHAPA: *Ō'evūtst'yohē*, 'Quarreling river' (*ev'hyōt*, 'she scolds,' + *ohé*). A tributary of the Arkansas between the Huerfano and the Purgatory in Colorado. Many years ago a village of Indians encamped there began to quarrel among themselves. Both men and women took part in the dispute. They did not fight; merely talked at each other—scolded.

CROW CREEK: *Ōhētān'ohé*, 'Crow (Indian) river' (*Ō'hētān*, 'Crow man,' + *ohé*). Near Cheyenne, Wyo. The Northern Cheyenne call this *Ōh'kōki'ohé*, 'Crow (bird) river.'

ARIKARA FORK OF REPUBLICAN RIVER: *Ōnōn'ohé*, 'Ree river' (*Ō'nōn*, 'Arikara,' + *ohé*). On an island (Beecher's island) in this stream the fight took place in 1868 between Maj. G. A. Forsythe's command of 50 scouts and the Cheyenne, in which chief Roman Nose was killed.

SAND CREEK: *Pūn'oihe*, 'Dry creek' (*pūn'oi*, 'dry,' + *ohé*). A tributary of the Arkansas east of Fort Lyon, Colo. Here occurred the Chivington massacre.

SALINE FORK OF SMOKY HILL RIVER: *Shistotōiyohe*, 'Cedar river' (*shistotō*, 'cedar tree,' + *ohé*).

PURGATORY RIVER: *Hōtōān'ohé*, 'Difficult river' (*hōtōān*, 'difficult,' + *ohé*). So named from its perpendicular banks and the cañons through which it runs.

MULBERRY CREEK: *Tsī'ōnitāi'ō*, 'Differently timbered' (river) (*tsī'ōnitāi'wo*, 'where different sorts of trees grow'). Tributary of the Arkansas from the south near Fort Dodge, Kansas. Named from the variety of trees which formerly grew on its banks.

FRENCHMAN'S FORK OF REPUBLICAN RIVER: *Wi'hiolyohe*, 'White-

man's river' (*wih'io*, 'white man,' + *ohé'*). The upper Rio Grande in New Mexico bears the same name.

NORTH FORK OF REPUBLICAN RIVER: *Wih'hiúniyòhe*, 'Chief river' (*wih'iu*, 'chief,' + *ohé'*).

PORCUPINE CREEK: *Hets'kovitsiyòhe*, 'Porcupine river' (*hètskòvùts*, 'porcupine,' + *ohé'*). A northern tributary of the Yellowstone.

SUN RIVER: *Íshít'yòhe*, 'Sun river' (*ishé*, 'sun,' + *ohé'*). A western tributary of the Missouri.

STINKING WATER, OR WIND RIVER: *Hòhkoméomáp*, 'Ill-smelling water' (*hòhkomé*, 'bad smelling,' + *mápi*, 'water').

GREEN RIVER: *Tássóiyòhe*, 'Scalp river' (*má táss'*, 'scalp,' + *ohé'*). Many years ago the Cheyenne had a fight on this river, in which many were killed, and when they saw the dead lying there scalped, they called it River of Scalps. It has also been given me as 'Soul river' (*tássòóm'*, 'shadow,' + *ohé'*), but the first is the true derivation.

BITTER CREEK: *Wíúhk'imáp*. (See Sweetwater River of the South, above.) Tributary of the North Platte from the north.

346 Broadway,
NEW YORK CITY

THE POWHATAN NAME FOR VIRGINIA

By WILLIAM WALLACE TOOKER

In the Powhatan name for Virginia occurs one of the few instances in which is found an Indian name applied to such an extensive territory. Virginia, according to the early charters, and as delineated by the cartographers of the seventeenth century, was a variable quantity as to its bounds in the north and south, which were also indefinable in the west, and were so considered by the colonists and the king. We cannot suppose, nor do we believe, therefore, that the subject of this essay applied to the whole of this vast domain, but rather, being a Powhatan appellation, it was applicable mainly to the country dominated by Powhatan, or at most to the lands drained by the tidewater streams flowing into Chesapeake bay on the west, as laid down on Capt. John Smith's map,¹ which are now included in the present commonwealth of Virginia. This view of the case is confirmed by Strachey (*Historie*, p. 29), who refers to the various tribes in the following words: "Which are in chief commaunded by their great Kinge Powhatan, and are comprehended under the denomination of *Tsenacommacoh*, of which we maye more by experience speak, yt being the place wherein our abode and habitation hath now (well neare) 11 yeares consisted." A note to this says: "In the Mss., the word 'six' was originally written, but has been crossed out and two strokes, thus, '11' inserted in darker coloured ink."

As Strachey arrived in Virginia in 1610 and remained three years, he must have written the above paragraph in 1613, when the colony had been established six years, and revised it in 1618, although his manuscript was not edited and published until 1849. In his "Dic-tionarie" he gives as Virginia, *Tsenahcommacah*. Therefore in these two notations we have the earliest form of the Powhatan name

¹ These lands Smith marks on his map "Powhatan" in large Roman letters which extend from south of James river northwardly to the upper Potomac.

for Virginia, which without question can be assigned to a period not later than the year 1613.

On the well-known engraving of Pocahontas (plate vi),¹ by Simon De Passe, which was copied by an unknown artist from a painting made in 1616, when she was 21 years of age, and still preserved at Booton Hall, near Aylsham, Norfolk, England, appears the legend: "*Matoaks als Rebecca daughter to the mighty Prince Powhatan Emperour of Attanoughkomouck als virginia converted and baptized in the Christian faith, and wife to the worth Joh Rolff.*" The picture is no doubt what it professes to be, namely, an authentic portrait, from life, of Pocahontas, made during the reign of James I. A description of the original painting, by Mrs Herbert Jones, appears in Arber's reprint of Smith's works. A copy is contained in Drake's *Book of the Indians*, 8th edition, 1841, which furnished the accompanying reproduction.

As Pocahontas posed for the portrait while in England, the name *Attanoughkomouck* must have been thus pronounced to the painter by Pocahontas herself, for the inscription is undoubtedly contempo-

¹ As to the significance and etymology of this name, Heckewelder (*Names, etc.*, 1833) says: "It was corrupted from *Pockohantes*, signifying, a streamlet or river between two hills, compounded of *pockke*, a rock, or rocky hill, and *hanne*, a stream, the latter word made a diminutive by the suffix *tes*." This is incorrect, for Strachey earlier wrote: "So the great King Powhatan called a young daughter of his, whome he loved well, *Pockahuntas*, which may signify little wanton; howbeit she was rightly called *Amonate* at more ripe yeares." (*Historie*, p. 111.) Strachey is correct in this statement, for the name, as revealed by its variations in spelling, is from the cognate of the Natick *pôschau* 'he or she plays' or 'makes merry'; -*ontas*, -*untas* (= Natick, -*ântam*, diminutive -*ântas*), is the formative of verbs expressing mental state and activity, or disposition of the mind, with the diminutive termination. *Pôschau-untas* thus signifies 'the little merry-minded,' 'the little frolic,' whence, also, 'the little wanton.'

"All wanton as a child, skipping and vain." — *Love's Labor Lost*. Of which trait Strachey writes: "*Pockahuntas*, a well featured, but wanton young girle, Powhatan's daughter sometimes resorting to our fort [Jamestown], of the age then of eleven or twelve yeares, get the boyes forth with her unto the markett place, and make them wheele, falling on their hands, turning up their heeles upwards, whome she would followe and wheele so herself, naked as she was, all the fort over." (*Historie*, p. 65.)

"*Amonate* at more ripe yeares," = *amonaten* 'she gives warning,' probably had reference to the warning which she gave Smith in 1609, for the Indians often changed their names at the time of some remarkable happening, viz.: "That when her father, intended to haue surprized him, shee by stealth in the darke night came through the wild woods and told him of it." (Smith, pp. 165, 455, 532.) *Matoaks*, on the portrait, = Natick *matohqs* 'a cloud.'



Matoaka als Rebecca daughter to the mighty Prince Powhatan Emperor of Attanoghomouck als virginia converted and baptizd in the Christian faith, and wife to the worth M. Joh Rolff

rary with the painting. Strachey's form, *Tsenahcommacah*, he probably obtained from some Indian frequenting Jamestown, perhaps from Kemps, the Indian who gave him the names of Powhatan's dozen wives, and whom he mentions as having died at Jamestown in 1612, after living with the colonists for nearly a year (*Historie*, p. 53).

While these two forms of the native name of Virginia are seemingly from different sources, their identity is apparent, the difference between them being due more perhaps to individual utterance than to any dialectal change. This appears plain when we compare the two — *Attanoughkomouck* and *Tsenahcommacah* — for then we find that the vowel sound of the initial *a* in the former was either discarded or was not heard in the latter, and that the second *t* was changed by assibilation into *s*, with resulting change in the vowels, which would make the name *Attanohcommacah* — a difference that would happen to any name spoken by a person who uses correct language, contrasted with the same spoken by a person with an impediment in speech, or with a decided lisp.

However this may be, in illustrating the etymology of the term I shall proceed as if the two forms were dialectally different and analyze them separately with the aid of the two most prominent New England dialects, for in its vocabulary the Powhatan is closer to these two than to any other of the Algonquin family. I have made this statement before in some of my essays, but it will do no harm to repeat it here. In fact it is difficult to give its equivalent from any other dialect, owing to lack of vocabulistic material; and this is especially true of the Lenape, so far as this name is concerned. It seems singular, however, that Smith does not refer to the name in any way, and the term most nearly approaching it is where he quotes Pory (page 507), who in 1621 visited a town called *Attoughcomaco*¹ on Pawtuxunt river, the habitation of Namenacus and of Wamanato his brother, where Pory was shown many corn-fields, which might indicate, as will be observed, the same derivation for this name as the other.

We have considered that these two early forms are sufficient for

¹ While this town is not named on Smith's map of Virginia, it appears to have been situated on the south side of Patuxent river, in what is now Calvert county, Maryland. Bozman, *Hist. Maryland*, book 1, p. 149.

our present purpose, and so have not searched further than the authorities given for others of the same period.

Attanoughkomuck finds its equivalent in the Natick *adtanohkomuk* (= *adtan-ohke-komuk*), from *adtan-*, *dtan-*, or *tan-*,¹ as Eliot varies it, 'growing,' 'producing,' as land does by cultivation; *ohke* 'land,' 'ground'; *komuck* or *comaco* (= Natick *komuk*, = Narragansett *kamuck*, or *commuck*), 'house,' 'inclosure,' 'an inclosed place,' hence 'land inclosed for producing or growing.' There is another constructive form, frequently used by Eliot, in several variations,² which is very similar to the foregoing in meaning but not in grammar, viz.: *adtanohketeamuk* (= *adtan-ohketea-muk*), 'a garden,' or 'where the ground is planted for growing'; *ohketeau*, 'he plants or sows,' with the termination *-muk*, which Trumbull variously calls the suppositive, passive, or present conditional-passive form of the verb.

Strachey's *Tsenahcommacah* finds its cognate form which has about the same letter change as before mentioned, i. e., *t* to *s*, in the Narraganset *sanáukamuck* (= *san-áuke-kamuck*),³ 'land,' 1st pers. sing. *nissawnáwkamuck* (= *nis-sawn-áwke-kamuck*), 'my land,' literally 'land inclosed for producing or growing,' and so by free translation the name may be interpreted as 'a plantation,' and its meaning perhaps was so understood by the Virginia colonists.⁴

Trumbull's suggestion⁴ that the Narraganset term was perhaps the same as *sowanohkomuk* (= *sowan-ohke-komuk*), 'south land,' 'a field with a southern exposure,' is not acceptable from any point of view; and it will not stand analysis, for the Powhatan term *chowán* = Natick *sowan* = Narraganset *sowwan*, 'south,' hence the Powhatan *chowánoek* = Natick *sowanohke*, 'south land,' which indicates that there is no cognation in the prefix with the Narraganset *san* or the Natick *tan*.

¹ My authority for the use of this prefix is Eliot's Bible. As it occurs in various compounds, it refers to 'growing,' or 'producing,' from the beginning of cultivation, while *adtannekin*, or *tannekin* (= *adtan-nekin*) has reference to complete growth, as when a tree fruits. This is plainly seen in the Abnaki cognate: *tsanig8*, 'il cesse de croître' — Rasle.

² *Tanohketeaonganit*, Dent. xi, 10 (= *tan-ohketea-onganit*), 'a garden'; *tanohketeaoné*, Solomon, iv, 12, 'a garden.'

³ Compare Narraganset (Williams) *wuskáukamuck* (= *wuske-aube-kamuck*), 'new ground,' from *wuske* 'new,' 'fresh,' 'young,' hence 'new ground inclosed.'

⁴ *Natick Dictionary*, p. 145.

For a final word as to *Pocahontas*, the woman, let us remember the unbounded obligations we are under for her part in preserving this "plantation alias Virginia," of which Smith (pp. 531-532) testifies in his letter to Queen Anne: "James towne with her wild traine she as freely frequented, as her fathers habitation; and during the time of two or three yeeres [1608-09], she next vnder God, was still the instrument to preserue this Colonie from death, famine and vtter confusion; which if in those times, [it] had once beene dissolved, Virginia might haue line [lain] as it was at our arriuall to this day. She was the first Christian euer of that Nation, the first Virginian euer spake English."

SAG HARBOR,
NEW YORK.

A PUBERTY CEREMONY OF THE MISSION INDIANS¹

By HORATIO N. RUST

In 1889 the author attended a puberty ceremony of the Mission Indians at Campo near the Mexican line in southern California. Word had been sent out that the ceremony would be held near this place. Friendly tribes were invited. Among others twenty-five Yumas came across the desert by a trail which leads by the new settlement of Imperial. The writer saw them crossing a mountain ridge mounted on ponies, in Indian file, gaily attired, presenting a most picturesque sight.

An Indian fiesta is usually much the same, though it may be assembled for various purposes. It consists of a general gathering of entire families, and eating, drinking, horse-racing, gambling, and all kinds of merrymaking are indulged in night and day continuously for about a week, or until food is exhausted and the sharpest gamblers have secured all the money and valuables at hand.

The present ceremony has been observed by the different tribes of Mission Indians of southern California from time immemorial. It has been described under various names, such as the "roasting of girls." It was learned from careful inquiry among the old women that the object of the ceremony is to prepare the girls for matrimony. As they arrive at the age of puberty they are informed of the object of the ceremony and told that they have been selected for it. They look forward to the event with pleasure rather than dread, for contrary to what has been represented there is nothing in it that is repulsive. The object of the present account of this ceremony as it was witnessed is particularly to show its relation to a certain sacred curved stone which was then new to the author, and to point out its possible relation to the sacrificial yoke or "Maya stone" of Mexico.

¹ Read at the meeting of the American Anthropological Association, San Francisco, August 30.

In the open space between the booths prepared for the guests a space was cleared for the dancers. Near this a pit was dug about three feet deep and five feet in diameter. In this pit a fire had been built which had warmed the damp earth and caused steam to arise through the green herbs with which the pit was nearly filled. The girls appeared wrapped in blankets. They lay down upon the green herbs and were covered with blankets. Finding themselves comfortable, they appeared very happy, peering out through their covers, laughing, and chatting. They remained here four days and nights continuously, except that occasionally they were wrapped in a blanket to go away for food. Sometimes acorn meal porridge was brought them to drink. During these four days the old women, who appeared very much in earnest, danced and sang around the pit, waving branches of sagebrush to drive away the spirits. These women intended to keep up their dance constantly, but worn out with old age and continuous effort they sometimes dropped on the ground and fell asleep. Having rested they would then return to the dance. Occasionally the visitors would join in a wild boisterous dance, shouting, singing, and beating time with rattles. These efforts would encourage the tired old women upon whom the responsibility of continuous dancing seemed to rest.

Once during the dancing an old woman appeared and scattered a handful of silver coins over the crowd. Anyone was permitted to secure the coins, and the act caused much merriment. It was explained that this was done to teach the girls to be generous. After this many yards of calico and gingham and ten sacks of wheat were brought and given away to the old and needy, in order to teach the girls by example to be kind to the old and the poor. After this quantities of wild seeds used for food were brought and sowed broadcast on the girls. This was done to cause them to be prolific. During the ceremony grain was also often showered over the crowd by old women.

As the end of the ceremony drew near, the chief ordered all strangers away. The girls, with blankets wrapped about them, arose and received garlands of leaves prepared by friends and placed upon their heads. They were then led away to a hillside where they were shown the sacred stone, which it was said was to pro-

tect them. This stone is about 13 by 15 inches in size, shaped like a yoke, and thirty-five pounds in weight.¹ It was said to symbolize or have reference to the female organ of generation. Then friends of the girls hung their garlands on rocks and bushes about, and the sacred stone was buried again. Grain was scattered over all and the ceremony was complete.

It is believed, and taught the girls, that the sweating in the pit and the remaining ceremonies banish bad spirits from the girls; also that the sacred stone entertains and controls these spirits and that they will not return to the girls as long as these do right.

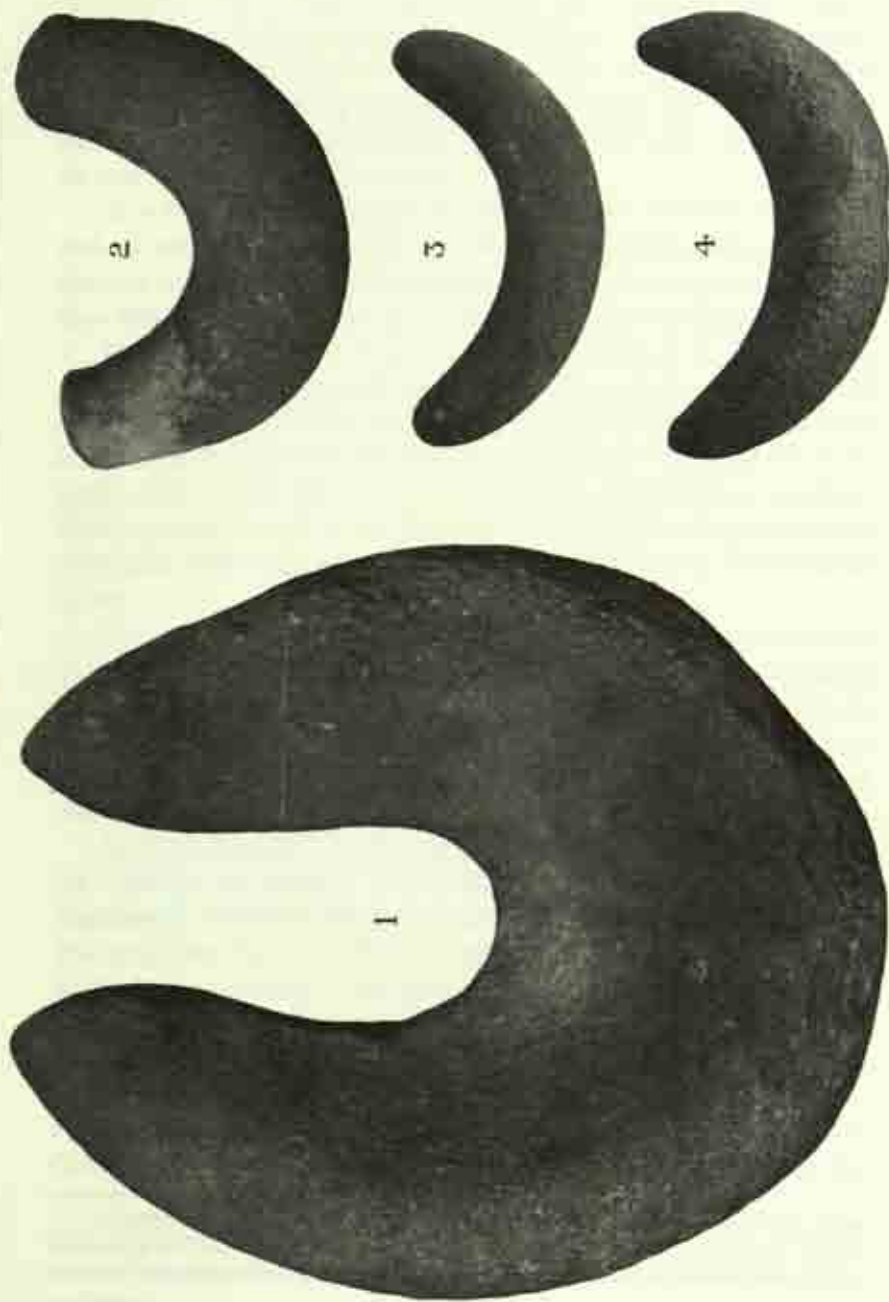
In 1879, on a visit to the National Museum of Mexico, the author was shown the sacrificial yoke or Maya stone, and was told by curator Mendoza that he did not believe that it had been used in sacrifices nor knew its employment or purpose. He presented the author with a small object of the same shape chipped from obsidian. This piece he thought bore the same relation to the large sacrificial yoke that small crosses worn by our people bear to the cross of Christ.

At a later date the author's son found among other relics on an ancient village site near Redondo Beach, California, a similarly shaped stone. This was about two inches in diameter and had been shaped by rubbing. In the belief that this represented the same idea as the small Mexican specimen of obsidian, it was preserved with it.

In 1893 a collection, including these pieces, was exhibited at the Chicago exposition. Here they attracted the attention of an Englishman who had specially studied the Mexican sacrificial yokes. His belief was that the Mexican objects represented the same idea as the two specimens from California and that no objects of the kind had previously been found in actual use.

Subsequently another specimen found at Santa Barbara has been obtained (pl. VII, 2). The two pieces from California first mentioned and the small Mexican piece are in the museum of Beloit College, Wisconsin, while the Santa Barbara specimen remains in the

¹ According to information subsequently received from the author, the large stone shown in plate VII, 1, while similar to the one used in the ceremony at Campo, was not obtained there but at another rancheria some distance to the north in Shoshonean territory.
— *Editor*.



CURVED STONES FROM CALIFORNIA

1. From Southern California. 2. From Santa Barbara. 3. From San Joaquin Valley. 4. From Oakland.

author's possession. Attention is also called to the crescentic object, grooved about the middle, illustrated in the upper part of plate vi, p. 114, of Mr William H. Holmes' paper published in vol. 1, no. 1, of this journal. This specimen is reputed to have come from the auriferous gravels of California. It is hoped that interest may be aroused which will lead to further investigation of this subject, and that it may be learned whether the sacrificial stone yoke of the ancient Mexicans represented the same religious belief as this sacred curved stone. It may also be suggested that our own superstitions regarding the horseshoe, which is of the same general form, may be connected with such beliefs.

SOUTH PASADENA,
CALIFORNIA.

NOTES BY A. L. KROEBER

Two stones similar to those described by Mr Rust are in museums in San Francisco and could therefore be exhibited at the meeting of the American Anthropological Association in connection with his paper. One of these specimens (pl. vii, 3) is in the California Academy of Sciences (cat. no. 40-1275). It will be seen that this piece resembles the one from Santa Barbara, but is somewhat smaller and less curved. It was found on a ridge between Poso creek and Kern river, that is to say, at the southern end of the San Joaquin valley, in territory occupied in recent times either by Yokuts or Shoshonean Indians.

The second specimen (figure 4 of the plate) is in the Anthropological Museum of the University of California (cat. no. 1-4562). The curvature in this piece is also not very pronounced. It differs from the last in having pointed ends and in a rougher finish, its surface showing pecking but no marks of rubbing. It is slightly grooved around the middle as if for suspension or attachment. Its length is not quite 9 inches. This specimen was found in 1872 by or through Mr C. D. Voy in the part of Oakland known as Brooklyn. It is thus from the shore of San Francisco bay, and there is some probability that it was found in a shellmound. Of course there is no direct information extant as to the use or purpose of either of these two specimens.

The following information as to the girls' puberty ceremony was obtained on inquiry in 1903 among the Luiseño Indians of Pauma and Rincon in northern San Diego county. These Indians are of Shoshonean stock, while those at Campo described by Mr Rust belong to the Yuman family.

A fire was made in a hole in the ground. In this tule was placed. The girls were laid on this on their backs. Two flat stones were heated and laid on their abdomens. Several girls, generally relatives, were usually put through the ceremony at once. They were called *as*, and the ceremony *weghenish*. The ceremony lasted four or five days. A head-dress of a plant called *engwish* was worn by the girls for several months after the ceremony. During this period they could eat neither meat nor fish. The duration of this restriction does not seem to have been altogether fixed. The longer it was observed the better it was thought to be for the girls. In some cases it is said to have lasted a year. The ceremony was performed in order to make good women of the girls. They were talked to by their relatives and advised to be good and to give water and food to people.

The conclusion of the girls' period of restrictions at puberty was marked by paintings made by them on the smooth surfaces of large granite boulders. These paintings, some of which can still be seen, especially near the old village sites, consist of geometrical arrangements of red lines, usually in patterns forming vertical stripes several feet high. After making her painting, a girl was again free to eat meat and salt. The paintings were called *yunish*.

At one period, apparently at the beginning of the ceremony, the girls ate tobacco. Several small balls of this, it is said without admixture of any other substance, were swallowed by them, after which they drank hot water. If they retained the tobacco they were said to be good; but if they vomited it, they were regarded as bad.

A REMARKABLE PIPE FROM NORTHWESTERN AMERICA

By HARLAN I. SMITH

In July, 1905, a remarkable pipe was procured by Mr George H. Pepper from Mr J. E. Standley, a dealer at Seattle, Washington, for the private collection of George G. Heye, Esq., of New York city. At the time of its purchase the pipe was labeled "A ceremonial pipe found in a mummy cave at Ellamar, Cook's inlet, Alaska."

This pipe, which is tubular in form and of the very remarkable length of 266 mm., is of mottled bluish-green steatite, apparently identical in character with that of which similar specimens of this type are made. The bowl of the pipe, which measures 53 mm. in length and forms a slight angle at its junction with the stem, is of the form characteristic of pipes of the Thompson River region.¹ Its upper edge is cut squarely across, while the bowl itself is gouged out longitudinally, in the process of which the wall in one place was broken through. The bowl is not circular, varying in diameter from 18 to 20 mm.

The stem, which is simply an extension of the bowl, the two having a common axis, is 204 mm. long, circular in cross-section, and larger toward its outer opening than where it joins the bowl.

The mouth-piece, which is 9 mm. in length by 31 to 32 mm. in diameter, is flat at the end, with slightly rounded edges, resembling in shape the end of a spool. There is a perforation through the flange of the mouth-piece, parallel with the axis of the stem, and one edge of the upper or larger end of the hole touches the stem (fig. 4). This end of the perforation enlarges for a short distance inward, as if drilled with a loose drill-point. From this enlarged part, as well as from the other end, the perforation of the flange

¹ See Harlan I. Smith, *Archæology of Lytton, British Columbia*, Mem. Am. Mus. Nat. Hist., 1899, II, pt. 3, pp. 154-155, 157-158; also *Archæology of the Thompson River Region, British Columbia*, *ibid.*, 1900, II, pt. 6, pp. 428-429.

becomes constricted to a point almost opposite the upper edge of the disk-shaped part of the mouth-piece.



FIG. 4.
Steatite pipe
from north-
western
America.
Collection of
George G.
Heye, Esq.,
of New
York city.
(Cat. no.
4686.) $\frac{1}{2}$.

The bore through the stem of the pipe is smallest where it opens into the bowl, and becomes gradually larger until it reaches a point about 13 mm. from the end, when it suddenly enlarges, showing the concentric striations produced by the drill. At the end of the stem it is 9 mm. in diameter. The bore is not circular, but varies from $4\frac{1}{2}$ to 5 mm. in diameter at the break near the middle of the stem, where the latter is 14 to 15 mm. in diameter.

This specimen resembles the pipes from the interior of southern British Columbia, Washington, and Oregon. A pipe from Lytton, B. C., shown in fig. 5 a,¹ has a bowl of the same general form, but varies from it in detail. In the Lytton pipe the bowl meets the stem in a gradual curve, not in an obtuse angle at the point of junction as in the Heye specimen. The mouth-pieces, however, closely resemble each other, although that of the Lytton pipe has a somewhat thicker base. The latter, which was found in a grave, is of greenish steatite; it is nicely made and well polished.

The mouth-piece of another pipe from a grave at Lytton (fig. 5 b)² also somewhat resembles that of the specimen under discussion; but its base is divided by an incision and the upper and lower portions are serrated. The bowl of still another Lytton pipe (fig. 5 c),³ collected in 1877 by the late Dr G. M. Dawson, is almost identical in form with that of the pipe in Mr Heye's collection, having the rim squarely cut off and the same gradual curve, but with a raised double band at its junction with the stem.

Of four pipes⁴ collected near Lytton by Lieut. G. T.

¹ Reproduced from the writer's *Archaeology of Lytton*, op. cit., fig. 103.

² *Ibid.*, fig. 104.

³ *Ibid.*, fig. 111.

⁴ American Museum of Natural History, cat. nos. 16.1—120 to 16.1—122, and 16.1—124. These are to be described in detail and illustrated in the writer's *Supplementary Notes on the Archaeology of Lytton* (MS.).

Emmons, U. S. N., the first two and the last have bowls of the same shape, while the third has seemingly been changed from the usual form by being ground down after having been broken. The rims of

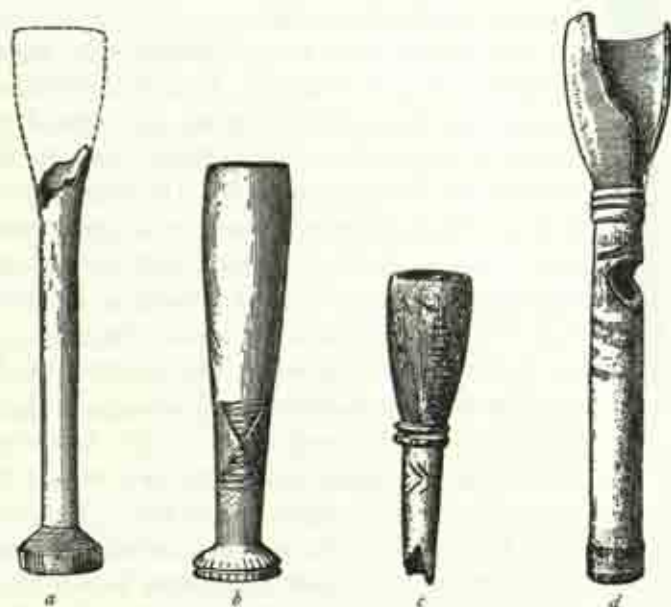


FIG. 5. — Pipes from British Columbia. $\frac{3}{8}$. *a*, Of steatite, from Lytton (Am. Mus. Nat. Hist., cat. no. 16-3083). *b*, Of steatite or allied material, from Lytton; collected by C. Hill-Tout (from a photograph of the specimen in the museum of the Geological Survey of Canada). *c*, Of steatite or allied material, from Lytton (from a photograph of the specimen in the museum of the Geological Survey of Canada). *d*, Of steatite, from Kamloops (Am. Mus. Nat. Hist., cat. no. 16-2519).

all are more or less squarely cut across. The first specimen has a somewhat cylindrical mouth-piece, the second a cone-shaped one, and the fourth a mouth-piece more or less specialized from the cone and decorated with incised lines. In the mouth-piece of each of these specimens the bore becomes suddenly constricted from the outer opening to the smaller bore of the stem.

The bowls of the pipes from Kamloops, B. C. (figs. 5*d* and 6),¹ also resemble that of the Heye pipe in having the same peculiar outline and slight angle where the stem is met. The bowl of the

¹ Reproduced from Smith, *Archæology of the Thompson River Region*, op. cit., figs. 374a, 374b.



FIG. 6.

Steatite pipe
from Kam-
loops, B. C.
(Am. Mus.
Nat. Hist.,
cat. no. 16-
2512). $\frac{1}{2}$.

first of these also has the rim cut squarely across and a small cylindrical mouth-piece. The stem of the second has been broken through in the making, as in the bowl of the Heye pipe.

The mouth-piece of a fragment of a pipe from Umatilla, Oregon (fig. 7a), is almost identical with that of the Heye pipe, showing the same form and having a perforation in the flange; but its base is shorter and less pronounced. The stem differs from that of the Heye pipe in that it is largest toward the bowl; and the bore of the stem instead of contracting suddenly from near the outer opening is smallest at the base and enlarges gradually toward the bowl.

A short steatite pipe¹ in the collection of Mr W. H. Spalding, of Ellensburg, Washington, which was found on Blalock island, near Umatilla, Oregon, has a bowl with the same gradually curving outline, rim cut squarely off, and gouged-out interior. This bowl has been broken through from the outside in process of manufacture. The bore of the stem is oval in section and is largest at the mouth-piece, which is cylindrical.

The general type of pipe above described is regarded as belong-

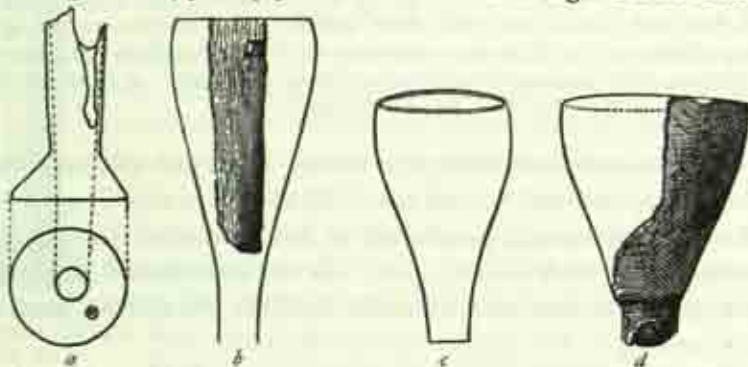


FIG. 7.—Steatite pipes from northwestern America. $\frac{1}{2}$. a, Fragment, from Umatilla, Ore. (from a sketch of the original in possession of D. W. Owen of Kennewick, Wash.). b, Fragment found under a shell-heap at Port Hammond, B. C. (Am. Mus. Nat. Hist., cat. no. 16-4115). c, From a shell-heap near Sidney, B. C. (drawn from the original now in possession of C. F. Newcombe, Victoria, B. C.). d, From a shell-heap near North Saanich, B. C. (Am. Mus. Nat. Hist., cat. no. 16-7206).

¹ Am. Mus. Nat. Hist., neg. cat. no. 44, 504 (6-5).

ing to the plateau region of southern British Columbia, Washington, and Oregon; and as many of the pipes of this region, although varying greatly in length, have special as well as general points in common with those of the specimen in Mr Heye's collection, it seems highly probable that the latter came from the same section rather than from Cook's inlet, Alaska. However, this general type of tubular steatite pipe reached the coast at Port Hammond and in the vicinity of North Saanich, British Columbia.

A fragment of a pipe bowl (fig. 7 *b*),¹ one of several from Port Hammond, has a flat rim, but the bowl meets the stem in a gradual curve. The specimen shown in fig. 7 *c*² has a bowl of typical form, curving gradually into the stem, with the rim cut squarely across.

The bowl of the pipe from North Saanich (fig. 7 *d*)³ flares more than that of any other specimen that has been observed; otherwise it is of the usual shape. An angle occurs at the junction of the bowl and the stem. The bore of the stem is ovoid in section.

Another pipe⁴ of this type was found at Fulford Harbour, British Columbia, the most northerly point on the coast that has produced pipes of this sort, unless the Heye pipe actually came from Alaska. The bowl of the Fulford Harbour specimen is separated from the stem by an incised line.

On the coast no pipes with flaring mouth-pieces are known to have been found. All the specimens from the coastal region are short and of nearly the same length.

The Heye pipe is the longest of its kind that has ever been brought to the writer's notice. In this respect it resembles most nearly the pipes of the interior, and differs extremely from those of the coast; moreover, the material is apparently identical with that of which all other known specimens of this general type are made. Pipes of this form are not known to have been found in the vicinity

¹ Reproduced from Harlan I. Smith, *Shell Heaps of the Lower Fraser River, British Columbia*, Mem. Am. Mus. Nat. Hist., 1903, IV, pt. 4, fig. 48a.

² See *Archæology of the Thompson River Region*, op. cit., p. 429; *Shell Heaps*, op. cit., p. 181; the writer's *Archæology of Puget Sound*, MS.

³ Ibid.

⁴ See *Shell-heaps*, op. cit., p. 181; figured and described at length in *Archæology of Puget Sound*, MS.

of Cook's inlet, or indeed from elsewhere in Alaska. Ellamar lies on the boundary between the Eskimo and the Athapascan areas, the Eskimo living to the west and the Athapascan tribes to the east. According to Lieutenant Emmons the nearest native village is about two miles from Ellamar.

If the dealer were correctly informed and the pipe actually came from Ellamar, it may have been a fugitive piece, taken to the coast in early times for trade or as a gift. If, on the other hand, it is eventually shown that the pipe is one of a type common in that locality, the fact will be remarkable indeed, as it is of a form now believed to be peculiar to the interior plateau region of Oregon, Washington, and southern British Columbia.

AMERICAN MUSEUM OF NATURAL HISTORY,
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NOTES ON THE PIMA OF ARIZONA

By ALEŠ HRDLIČKA

INTRODUCTION

The Pima¹ are a tribe of special interest to anthropologists, since physical examination shows them to be practically identical in type with the ancient cliff-dwellers of southern Utah and with many of the eastern Algonquian tribes. They are physically related to the Papago, the Yaqui, and especially to the Tarahumare, but they differ from every other tribe of Arizona and northern Mexico.

The Pima are divided in two groups—those residing in the valley of the Rio Gila in southern Arizona, and those known as Lower Pima, or Pimas Bajos (Nevome), about Ures on the Rio Sonora and on the upper waters of the Rio Yaqui. These two groups hold no communication, and only a few individuals of each know of the existence of the other. Antonio Azul, the old chief of the Pima of Sacaton, on the Gila, preserves a tradition that the two branches once lived as a single tribal group in Sonora.

The Arizona Pima number nearly 4,000. In the official census the Pima of Mexico are not enumerated separately, but they no doubt still number several hundred pure-bloods. Both groups have made considerable advance toward civilization.

The settlements of the Arizona Pima, who alone will here be treated, extend along the Gila from a little west of Casa Grande ruin, principally on the south side of the river, to the territory of the Maricopa. Their principal villages, from the east westward, are Blackwater, Santa Ana, Sacaton, Sweetwater, and the Casa Blanca group. Smaller contingents live on the Salt River reservation and about Lehi, north of the Gila valley. A branch of the Pima, by some spoken of as belonging to the Papago, but claimed by the Pima as a part of their tribe, is popularly known as "Quarities."

¹ Visited in 1902 under the auspices of the Hyde Expedition for the American Museum of Natural History, and in 1905 for the Bureau of American Ethnology. The accompanying illustrations are from negatives made by the writer and now in the American Museum of Natural History.

These people live in a village situated two miles south of Casa Grande station on the Southern Pacific railroad. Their true name is *Kwohatk*, which, according to the Pima, was originally the name of their village. With one or two exceptions the *Kwohatk* children examined by the writer at the Sacaton school exhibited the same measurements and features as the Pima.

PRESENT CONDITION

Primarily the Pima are agriculturists, but they also eke out a livelihood by selling wood and in working for the whites. They say that formerly they hunted, and fished and gathered many clams in the Gila, but owing to the settlement of the adjacent country, which began about twenty-five years ago, and the consequent diversion of the water for irrigation farther up the river, most of the land and aquatic animals and birds, as well as the clams, have disappeared. Except a few of the men who prefer to wear long hair, and the old men who, when warm, divest themselves of all except the breechcloth, the Pima now dress like their white neighbors. Many, especially at Sacaton, are almost or wholly civilized, and a few of the youth are well educated; indeed, the efficient young teacher in charge of the Casa Blanca day-school is a full-blood Pima. The majority of the dwellings at Sacaton compare very favorably, both inside and out, with those of white people of the same relative level. In religion many of the Pima are adherents of the Protestant or the Catholic faith. Nevertheless, there are still, particularly in the group of villages about Casa Blanca, a number of old Indians who care little for the ways and religion of the white man and who preserve many traditions as well as a few old native observances. The old men of the Casa Blanca villages have formed a society of "oldtimers," and often meet to recount the deeds of their younger days and to repeat traditions. Here, no doubt, still exists a mine of information for the ethnologist.

The Pima still preserve traces of their original form of government in that each of the larger villages acknowledges a chief. The chief at Sacaton is Antonio Azul; the one at Casa Blanca is known by the whites as Henry. In the family of Antonio, chieftainship has been hereditary, and both he and his sister Mary, a midwife in

the tribe, know much of the tribe's history and traditions. The rôle of the chiefs is that of advisers, representatives, and to a certain extent judges of the people; but in matters of importance, and sometimes in ordinary affairs, the chief calls an assembly of the men in his village, and with them the decision rests. In their dealings with the tribe the chiefs are recognized by the United States authorities.

Of the native religion, notwithstanding early and persistent missionary efforts, first by the Jesuits, later by the Franciscans, traces still remain with some of the old people. In the small sierra north of Santa Ana is a cave to which, I was assured by the Indians, some of the elders yet go for prayer and offering. Pottery, grain, and other articles are still sometimes buried with the dead. A few of the old men about Casa Blanca at least occasionally assume the rôle of shamans. During the long dry spell which ended in the spring of 1905 they resorted to the ceremony of "rain-calling," a part of the preparation for which consisted in obtaining some sticks of *kauf-ku-us*, hard-wood (*Sarcobatus vermiculatus*), which were cleaned and notched on one side; they were then rubbed along the notched portion with a smaller plain stick during incantations to the rain deities.

The people have no knowledge or understanding of the numerous petroglyphs found in their country, but they sometimes copy in their basketry designs the decoration of the ancient pottery found in their neighborhood. The swastika, which has been adopted by one of the Pima of Sacaton as a brand, represents, according to Antonio Azul, the talons of a hawk. This figure was formerly one of the tribal totems and was painted on war shields.

DWELLINGS

The habitations of the Pima are of three kinds: (1) a hemispherical dwelling of sticks, brush, and mud, known as *ki* (pl. ix, 4); (2) a quadrilateral, flat-roofed structure of poles, sticks, and brush, with a mud roof and sometimes mud-covered walls, used chiefly as store-houses, but occasionally as dwellings (pl. ix, 3); (3) an adobe house, patterned after that of the whites (shown in the distance in pl. viii, 3).

The well-made dome-shaped dwellings, which are the favorite abodes of these people, are circular or oval in ground-plan, and generally larger than similar structures built by the Papago or the Apache *khüva*. The walls consist of upright ribs, strengthened with three, four, or five circles of sticks fastened externally. The intervals between the uprights are filled with arrow-weed or brush and the whole is then covered externally with mud. The simple fireplace is in the middle of the floor, and a small hole is left in the top of the hut for the escape of the smoke. A small, low opening on one side serves as the door. This form of dwelling, which is still much in evidence over the western part of the Pima reservation, is cool and somber in the day and warm at night; but as it is deficient in ventilation, in the morning the air is always more or less foul. About Sacaton the hemispherical dwelling has been superseded by adobe and other modern houses. Accompanying this dome-shaped lodge are almost always one or two well-constructed and well-ventilated, quadrilateral, flat-roofed store-houses, and often an open shed for culinary and other domestic purposes (pl. VIII, 4; pl. IX, 4). On the roof of the store-house is often fastened a cylindrical, roofed grain receptacle, made chiefly of straw and mud, adding much to the picturesqueness of the settlement. The store-house, which is often spacious, serves for the safe-keeping of corn, squashes, and other commodities, and occasionally it is used also as a kitchen. The dwelling, shed, and store-house form a characteristic and always more or less isolated group, and a straggling aggregation of these constitutes a Pima village. An object commonly to be seen in front of or near a Pima dwelling is a post, planted in the ground, with a three-branched upper end for holding a large water jar. The ceilings of the flat-roofed houses, including the adobe dwellings, are usually made of the flat ribs of the saguaro, or giant cactus.

MANUFACTURES

Basketry.—The two chief manufactures of the Pima women are basketry and pottery. From stout coils of straw or grass the women make great jar-like basket receptacles for grain; and from a variety of splints and weeds the ordinary coiled olla-shaped baskets, concave plaques, and a few entirely flat pieces are fashioned. The



THE PIMA OF ARIZONA

1. Old woman pounding mesquite beans. 2. Old woman carrying wood. 3. Woman grinding corn under an improvised shelter. 4. An old man and his daughter, with their dwelling.

plaques (pl. VIII, 1, 3) are used for grain, corn-meal, etc.; the now rare flat, circular pieces for tortillas; while the jar-shaped and other baskets are made principally for sale.

The materials used are willow (*či-uhl*) or cottonwood (*a-nh-pa*) splints, with cat-tail (*u-t-hwak*) reeds for the coils. In workmanship and decoration the baskets range from ordinary to really artistic. The design, now always in black and usually in geometric figures, is effected by the use of catsclaw (*yi-huk*). To the geometric figures are occasionally added grotesque representations of animals, such as the horse, coyote, lizard, cock, etc. The *u-t-hwak* is generally split with the teeth, which are also employed in making the splints. In preparing the catsclaw the women wet the osier, split the end with a knife, take the point of the splint between the teeth, and then give repeated short pulls as the catsclaw is held in the right hand while the splint is being bent over the index finger of the left.

Willow and cottonwood fibers are preserved in coils, a large number of which are usually bound together. The catsclaw is cultivated by the Pima in their melon patches, and is occasionally made up into great balls for preservation until needed. Formerly some of the plaques designed for domestic use were made watertight by coating the inside with melted greasewood gum, known as *uh-řa-pe-tek*, but this is now rarely done.¹ The Pima women generally deny that their basket designs have now any known symbolic meaning.

Pottery.—The Pima women make earthenware jars (pl. VIII, 1, 3) and bowls in a variety of shapes and sizes for domestic purposes. Some of this ware is decorated chiefly in painted geometrical figures. A few of the jars have a capacity of three gallons. The base of the jars is generally convex. In recent years, especially among the more civilized Pima, the pottery industry has retrograded, many of the vessels which they now use being manufactured by the Kwohatk and the Papago. In one Pima dwelling the writer found a Chinese vessel.

In a Papago settlement, near Sacaton, a woman was seen to pour into a small jar that she had just fired, while the vessel was still nearly red hot, a thin mixture of water and flour, and also to

¹ For a general description of Pima basketry, with illustrations, see Mason, *Aboriginal American Basketry, Report U. S. National Museum for 1902*, Washington, 1409.

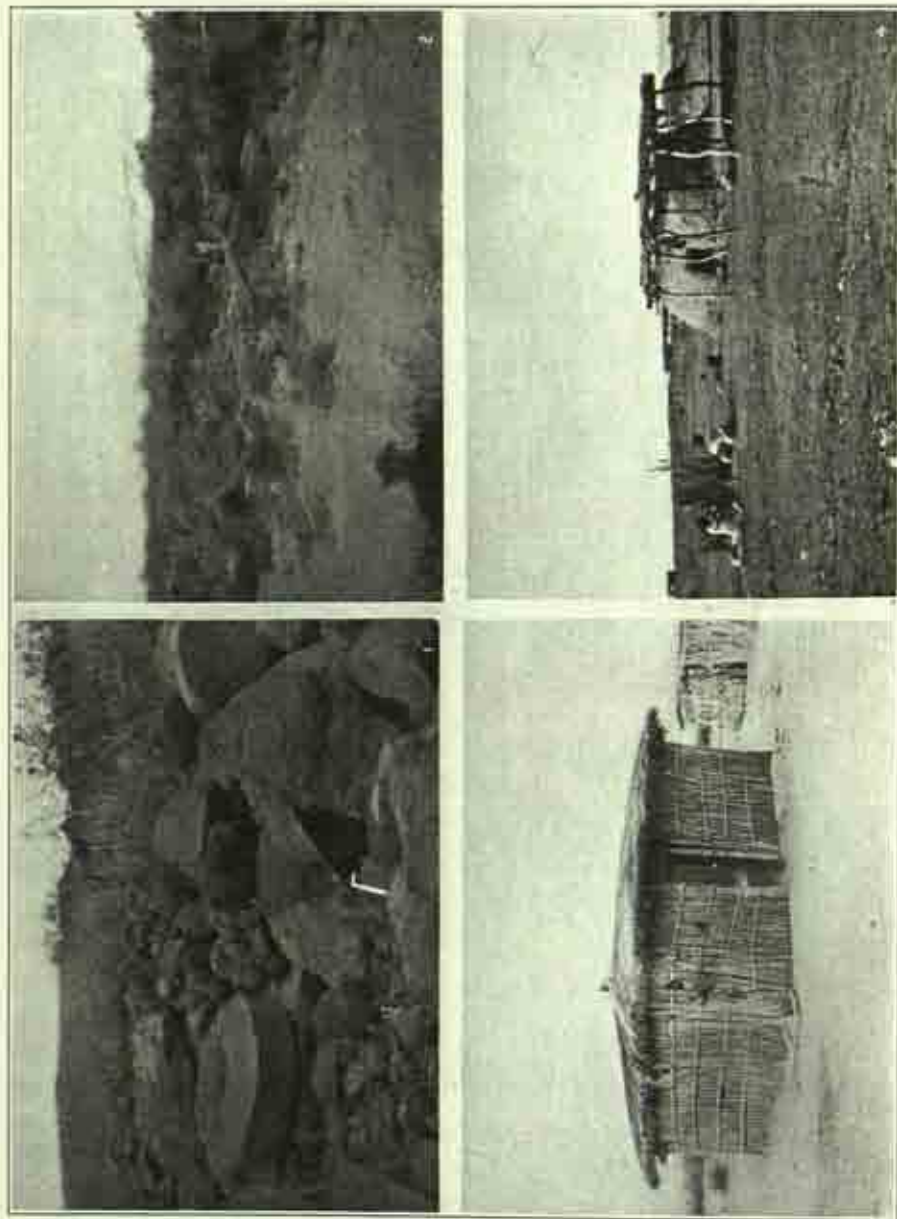
sprinkle the same paste over the surface. This, she said, was to seal the pores of the vessel, making it impervious. The Pima practise the same custom. For mending pots the Pima pound greasewood gum (*uh-r̄a-pe-tek*) between two stones, heating the mass until liquefied and black, and then applying it to the joints that are to be united. This cement is said to be effectual for some time. Some of the paints used by the Pima women for decorating pottery are of vegetal origin (e. g., mesquite gum), which accounts for the poor preservation of the figures on many of their vessels.

Weaving.—The only weaving now done by the Pima is the netted part of a carrying basket, or *kihu*, which is stretched over four sticks, tied near one end and diverging at the other (pl. VIII, 2). This carry-all is common to the Pima and Papago, as well as to other tribes of northwestern Mexico as far as the Cora in the Territory of Tepic. There is no native embroidery or beadwork.

Wooden Utensils.—Of wooden utensils of native origin but three are now employed—a mortar and pestle, and a rude spatula with a small handle used for smoothing pottery (pl. VIII, 1). The mortar varies in size and is usually of cottonwood. The pestle is of mesquite; it ranges in length from 3 to 3½ feet, and the pounding is done with the heavier end. The woman seen in plate VIII, 1, is using a stone pestle.

Cradles.—The Pima use two forms of cradles. One, the rarer, is like that of the Apache and Maricopa, and is probably derived from the latter. The other consists of a swing made by suspending two long ropes from the roof, their ends being about 2½ or 3 feet from the ground. About midway the ropes are separated by two sticks, about 18 inches long, fastened between them. A cloth is attached to the ropes where thus separated and allowed to form a sort of hammock about 15 inches deep; into this is placed an improvised cushion and perhaps a small blanket. The child is placed in this suspended cradle, the front and back are fastened together to prevent the baby from slipping out, and by means of a string tied to one of the ropes the little one is lulled to sleep. This appliance, which is probably of Spanish origin, is used also by some of the Papago.

Musical Instrument.—The only native musical instrument heard of was a sort of a compound flute, or Pan's pipes, now very rare,



THE PIMA OF ARIZONA

1. A grave among rocks. 2. Burials in the plain, covered with poles and branches. 3, 4. Dwellings.

made of a number of reed whistles, differing in length, placed side by side.

CUSTOMS

Until within recent years the Pima had many ceremonial observances, songs, games, etc., but these have been largely abandoned.

Unlike the Apache, Navaho, and some other southwestern tribes, these people eat fish, ducks, chickens, and indeed everything obtainable that enters into the dietary of the white man. The only native drink, now rarely made, is a wine manufactured from the juice of the saguaro, or giant cactus.

The older women have tattooed lines on the chin, and frequently a single line from the external angle of each eye backward. The young neither tattoo nor paint.

The hair of the women, who go bareheaded more often than the men, from exposure to the sun becomes superficially of a more or less rusty color. To overcome this blemish they dye their hair with the juice of the mesquite, mixing this substance, which is obtained by boiling the inspissated exudation found especially on old trees, with fine river mud. This paste is applied for one or two nights and washed off in the morning, and the treatment causes the hair to remain beautifully black and glossy for a long time.

When a man dies the rafters of his house are taken down and neatly arranged over his grave (pl. ix, 2), which is so dug as to be spacious at the base and small at the top. Some of the Pima still deposit with the body, as before mentioned, various domestic articles.

The younger element in the tribe has enthusiastically adopted the outdoor games of the whites, particularly foot-ball. Baseball was also in favor until one of the players was killed by a batted ball. The larger villages have each a creditable foot-ball team trained by natives who have been educated in the higher Indian schools.

Of native out-door games the Pima and Maricopa until recently played each fall a great ball-kicking game called by the Pima *wi-če-ta* and by the Maricopa *hu-ná-wak*. The game is still in vogue among the Papago, but the Pima and Maricopa have abandoned it, believing that it was not viewed with favor by the Indian department. The game was described as follows: Several balls (*ron-dul*) were made from *uh-řa-pe-tek*, the gum that develops from a parasitic attack on the grease-wood (*řij-koh*). Occasionally the

balls consisted of a core of wood covered with gum; and in ancient times the core was of stone, but smaller. A specimen of the latter sort was obtained by the writer at the Pima village of Casa Blanca. Each of two villages selected a runner, expert in the game, who was accompanied by twenty or thirty of his villagers on horseback. The course usually extended from one village to another, a distance of six to ten miles. Starting at one of the villages, each runner laid his ball on the ground, then picked it up upon the dorsum of the bare foot, and with the same motion threw it forward as far as possible, at the same instant starting to run. When the ball was reached, it was again picked up with the foot and thrown, and this operation was repeated as rapidly as possible until the goal was reached, he whose ball reached the goal first winning the contest. The horsemen followed or accompanied the players, those of the racer in the lead aiming to confuse and to retard the progress of his opponent by causing their horses to raise as much dust as possible. Each party also aided their runner by telling him where his ball had fallen or rolled. As the course was in no way prepared for the contest, it often happened that a ball would roll into the brush, and only the watchfulness of the horsemen prevented it from becoming difficult to find or even entirely lost. A player was never permitted to touch the ball with his hands. If it fell into a hole and could not be recovered, or was lost and could not be found for a given length of time, the racer was furnished with another. It is said that the most expert players could cast the ball with the foot and run so fast to overtake it that it was necessary for the accompanying horsemen to keep up a constant gallop. Contestants in this game would falter only if the ball were lost. The winner was usually rewarded only by the honor that success brought to him and his villagers, but there was much betting on the result between the people of the two contesting settlements. The Papago of southern Arizona played this game, during one of their celebrations, as late as March, 1905.

The medical practices and other particulars concerning the Pima will be published in a forthcoming bulletin of the Bureau of American Ethnology.

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TRADITIONS OF PRECOLUMBIAN EARTHQUAKES AND VOLCANIC ERUPTIONS IN WESTERN SOUTH AMERICA

By ADOLPH F. BANDELIER

The information contained in this paper is limited and fragmentary. Colombia, Ecuador, and Chile were necessarily included in the writer's documentary investigations, but as he did not visit these countries, what is said about them is incomplete. Nor can the subject be treated from the standpoint of physiography, through lack of specific knowledge, hence the paper will be devoted to a record of the Indian traditions preserved from the time of the earliest Spanish occupancy or by modern investigators, with an attempt to determine in what degree they may be accepted as purely primitive lore.

In Colombia, the most northerly country of South America on the Pacific coast, traditions regarding a mythical personage, or personages, called Bochica, Nemquetheba, and Zuhé, in the Muysca or Chibcha idiom of Bogotá, may possibly refer to violent seismic disturbances in precolumbian times. The Bishop of Panamá, Lucas Fernandez Piedrahita (1), in his work published in 1688, states :

"Of the Bochica, they refer in particular to many favors he conferred upon them, as to say, that through overflows of the river Funzha, in which the artifices of Huythaca played a part, the plain or level of Bogotá had been flooded, and the waters so increased that the natives were compelled to settle on the tops of the highest mountains where they remained until Bochica came, and, striking a mountain range with a stick, opened an outlet for the waters, which forthwith left the level land, so that it became habitable as before, and the forces of the repressed waters in damaging and breaking the rocks was so great that they formed the fall of Tequendama, so famous as one of the wonders of the world." (2)

In his writings (3) Fray Pedro Simon antedated Piedrahita by about 44 years. He agrees with him on certain points, but attributes the overflow of the plateau of Bogotá to a deity which he

calls Chibchachum. In treating of the origin of the cult which the Muysca or Chibcha offered to the rainbow, calling it Cuchauiva, or Chuchauiva, he states (4):

"The foundation for these Indians to worship, with offerings, the rainbow Cuchauiva, was in this manner. They found this, their reason, on saying that, on account of certain deeds which they thought the God Chibchachum had done unto them, the Indian murmured against him, offending him secretly and openly. Chibchachum, angered by it, devised to punish them by overflowing their lands, for which purpose he created or brought over from other parts the two said rivers of Sopo and Tibito, through which the waters of the valley increased so much that the soil, as they say, taking no pains to absorb them, a great portion of it came to be flooded, as had not been the case before the two rivers entered the valley."

In this stress the Indians appealed to Bochica, sacrificing to him, whereupon he appeared to them on a rainbow with a golden rod in his hand, promising relief. "And saying this, he thrust the rod toward Tequendama, cleaving the rock between which the river now flows; but the rod being slender, it did not make an opening large enough for all the many waters that accumulate in winter, so that it still somewhat overflows. But after all the ground became free for planting and for the necessary sustenance [crops]." (5) Thenceforth they performed ceremonies whenever a rainbow appeared.

Thus far Simon agrees in substance with Piedrahita, but that which follows was either unknown to or was overlooked by the latter.

"Although filled with fear by what Chibchachum afterward gave them to understand—that many were to die when the rainbow would appear to them, on account of the punishment Bochica had inflicted upon him, [compelling him] to carry the whole earth and sustain it, whereas they say it previously rested on large timbers [*guayacanes*]. And this is the reason why now the earth trembles, which it did not before: That as it is heavy, when he shifts it from one shoulder to the other it moves, and all of it shakes." (6)

The story about Bochica's opening the cleft of Tequendama would hardly deserve attention were it not for a remark by Humboldt, who visited and examined the site. He says:

"The river narrows much, close to the cataract itself, where the cleft, which seems to be the result of some earthquake, has only ten or twelve meters of width." (7)

If we place this observation of the great man of science beside the story of the cause of earthquakes as related by Fray Pedro Simon, in which Chibchachum is converted into a modern Atlas, the opening of the rent at Tequendama might be fancied as a beginning of seismic disturbances in Colombia. But unfortunately all these reputed Indian tales are open to grave objection from our present point of view.

In the first place, the primitiveness of these stories is not yet established. Simon was born 38 and Piedrahita 82 years after the first meeting of Europeans with the natives of Bogotá. The writings of Gonzalo Jiménez de Quesada (8) might possibly settle the question whether or not the Tequendama story is untainted aboriginal lore. The teachings of the Catholic church rapidly penetrated native lore, introducing not only biblical ideas, which the Indian remodeled to suit their primitive notions, but even fragments of Greek mythology. The resemblance between the story of Atlas and that of Chibchachum supporting the earth and causing it to quiver is striking indeed. I am far from suggesting relationship, merely hinting at a possible infiltration into Indian lore after 1536, such as no doubt occurred among other and very remote Indian tribes.

None of the general works on Spanish America in the sixteenth century, based on original material, mentions, so far as known, traditions of the Chibchas, but this does not affect the possible authenticity of the tales in question. Oviedo, for instance, wrote his chapters on New Granada only a few years after the conquest, too early for obtaining reliable information on specific points not relating to military or administrative questions (9). Afterward, it seems, the earliest writings on Colombia were not or could not be consulted by the painstaking compilers of the century of the conquest.

It should also not be forgotten that the above Indian stories, even if precolumbian originally, might have been "myths of observation." Comparison of the remarkable cleft of Tequendama with the effects of earthquakes experienced elsewhere may have led to an explanatory tale in which the seismic forces became personified.

Transition from Colombia to Ecuador is through Pasto, situated near the confines of both countries. Of one of its well-known volcanoes Pedro de Cieza relates, in 1550, after having visited it in 1539:

"Farther on (south of Popayan) is a tall range; on its summit is a volcano, from which sometimes much smoke arises and, in times past, according to what the natives say, it broke out once and threw out a great quantity of stones." (10)

This evidently refers to some eruption previous to the arrival of the Spaniards, for, had it occurred subsequently, Cieza would have recorded the fact. The term "stones" refers to lapilli.

The tale of giants having landed, in precolombian time, at Punta Santa Elena, west of Guayaquil, has been discussed in a paper previously published in this journal,¹ and I return to the subject because of the report of Agustin de Zárate on the manner in which the story became confirmed in the eyes of the Spaniards, and for the reason that a somewhat different version of the tale has been obtained subsequent to its publication.

Zárate, who was an administrative officer of high rank, went to Peru in 1543 (11). My translation of his statements not being literal, I give the original text in a note (12). He says:

"Withal, what the Indians told about these giants was not fully believed until, in the year 1543, when the captain Juan de Olmos, a native of Trujillo, was lieutenant governor at Puerto Viejo, he caused excavations to be made in the valley, having heard of these matters. They found ribs and bones so large that, if the heads had not appeared at the same time it would not have seemed credible [i. e., that the remains were] of human beings. And so, after the investigations were finished and the marks of the thunderbolts seen in the rocks, what the Indians said was held to be true; and of the teeth found there, some were sent to various parts of Peru and found to measure, each, three fingers in width and four in length."

There is hardly any doubt concerning the precolumbian origin of the tradition, for it cannot be a distorted account of the first appearance of Spaniards on the coast of Ecuador in 1525 (13).

¹ *American Anthropologist*, vol. VII, 1905, p. 253 et seq.

The large human-like skulls dug up were those of mastodons, as Prof. H. F. Osborne of the American Museum of Natural History has informed me, judging from the close outward resemblance of the skull of the elephant with that of man. Hence the statement of Zárate has also the merit of being the earliest mention of fossil remains in Ecuador thus far known. Pedro Gutierrez de Santa Clara was a soldier of the same sort as Cieza, that is, he not only observed and inquired, but recorded his observations and the results of his investigations very carefully. He wrote what is now being published in five volumes, embodying a detailed account of the civil wars in Peru, from 1544 to 1548, of which he was an eye-witness, as well as much valuable material on the manners, customs, and traditions of the aborigines. He appears to have been an honest recorder, but, like Cieza, not a critical one—a consequence of the times. His version of the "giant" story is too long to be given here, except those parts that diverge from the texts of Cieza and Zárate; and even then only in a condensed or synoptic form.

Gutierrez places the arrival of the giants in the time of the Inca war-chief Tupac Yupanqui, that is, in the second half of the fifteenth century. They arrived on the coast of Ecuador in "barks or rafts of great size made of dry timber and canes, propelled by lateen sails, of triangular shape, and from the direction of the Moluccas or of the Straits of Magellan." They at once began their depredations. The natives threatened them with the power of the Incas, and they settled peaceably, out of fear of the great might the natives represented the Inca to have (14). For the remainder of the tale Gutierrez is fairly in agreement with his predecessors. The immoral customs, the wells cut into the rock, the destruction of the monsters by some meteoric (or volcanic?) phenomenon, are told in the same manner as by Zárate and Cieza. But he says also that Francisco Pizarro saw the gigantic bones of mastodons which were taken for those of human beings, and that similar ones were discovered in the valley of Trujillo in Peru (15).

The approximate date of the arrival of the giants and the statement that Francisco Pizarro saw the large fossil remains throw suspicion on the tales of Gutierrez. He went to Peru about 1543 (certainly not before), and was probably misled by the statements of

persons who had already begun to "elaborate" the Indian tradition by additions and modifications. If the "giants" had arrived on the coast during the time of Yupanqui and had some intercourse with the Inca as Gutierrez asserts, it would have been preserved in Inca lore, which is or begins to be somewhat reliable only from the time of Tupac Yupanqui (16); and as to Pizarro having seen the fossil remains, it must be remembered that the latter were discovered in 1543, whereas Pizarro was killed at Lima two years before. The information Gutierrez purports to give is therefore of doubtful character.

The authenticity of the giant tale as precolumbian Indian lore is beyond doubt (17), but its connection with *volcanic* phenomena is by no means certain. The "angel" descending from the skies in fiery garb and shooting fiery darts at the monsters would rather recall some *meteorite* of unusual size and brilliancy. It would be very unusual for fragments of a siderite to penetrate deeply into hard rock. The tradition might, therefore, though with less probability, be a distorted version of some volcanic display in the interior, but witnessed on the coast or having taken place on the coast itself. Of any such disturbance near Puerto Viejo I have as yet found no trace, unless the asphalt pools of Colonchen be a survival (18). Of the great volcanoes in the interior of Ecuador, Tungurahua, Sangay, and the long extinct Chimborazo lie nearest to Cape Santa Elena, but it would be a matter of surprise, to say the least, if any solid material ejected by them had reached the foot of the coast range. Sangay, which is the most active at present, is somewhat more than 17,000 feet in altitude and rises on the eastern declivity of the Andes (19). Tungurahua is active at intervals, and its elevation is a few hundred feet less than that of Sangay (20). Chimborazo is by far the tallest (20,500 feet) and also the nearest, lying in a direct line nearly 140 miles from Cape San Lorenzo (21); but while the fact of its being an extinct volcano has been lately established (22), and ashes ejected by other mountains have drifted to much greater distances, incandescent rock or lava is not known to have been thrown such a distance as that from Chimborazo to Puerto Viejo. As to Tungurahua, it lies at least 160 miles inland, while Sangay is 200 miles from the coast. Unless geological investigation should reveal other evidences

of volcanic action than those now known, the luminous phenomenon connected with the extermination of the "giants" must be attributed to a large meteorite in precolumbian times (23).

Cotopaxi, the loftiest of all active volcanoes in Ecuador (19,613 feet, according to Whymper), had a violent outbreak in 1534 (24). But Cieza speaks of a volcano which, the Indians informed him, had a formidable eruption in precolumbian times. He says:

"There is, on the right hand of this village of Mulahalo, a volcano or mouth of fire which the Indians say broke out anciently and threw up such a great quantity of stones and ashes that as far as the cataclysm extended it destroyed a great portion of the villages." (25)

Cotopaxi lies near Mulahalo, on Cieza's left as he traveled from Quito. On the right rises the peak of Illiniza, and the eruption might therefore have been from the latter. But Illiniza, which is 17,405 feet, according to Reiss and Stübel (26), is not a volcano. The rock is volcanic, but no lava streams have been observed (27). The presumption, therefore, is that Cieza, confounding, as he did in another instance (28), right with left, really meant Cotopaxi.

In a document of the sixteenth century, Chimborazo (until lately regarded as a bell-shaped upheaval of trachyte) is twice mentioned as a volcano, and the following interesting statement is added:

"The Indians say the volcano of Chimborazo is the man, and the one of Tungurahua the woman, and that they communicate [have intercourse with each other], Chimborazo going to see his wife and the wife her husband, and that they hold their meetings." (29)

Of the present activity of Tungurahua there is ample proof, and the reported communication between the two mountains (a belief common to Indians inhabiting volcanic districts of Ecuador and Peru) alludes to eruptions of Chimborazo also, although at a period probably quite remote.

Cayambe, another of the tallest Ecuadorian peaks now considered extinct, is mentioned in 1582 as occasionally active:

"There is, in the district of my *corregimiento*, a very high volcano and great, that always has snow on high, and sometimes light issues from an opening it has. It is called the volcano of Cayambe, from the village at its foot." (30)

The altitude of Cayambe is given by Whympers as 19,186 feet (31).

The Pichincha or Rucu-Pichincha, the volcano nearest to the city of Quito, is said by Velasco to have made its first eruption in 1540. "It was not known to be a volcano; the Indians themselves ignored it; that eruption must therefore be regarded as the first." (32) Velasco then says it took place "when the troops of Gonzalo Pizarro were still in the country." (33) Gonzalo Pizarro, on his famous expedition to the cinnamon country, arrived at Quito December 1, 1540, consequently the eruption must have occurred between that date and May, 1541 (34). In a subsequent passage Velasco says Gonzalo Pizarro was "at a great distance," and that the effects "were felt more where his troops were" than at Quito (35).

But Velasco is not a very reliable authority. His main source seems to have been Gomara, who, while he never visited America, had at his command original documents and held intercourse with the most prominent explorers of the period as they returned to Spain. He treats of the occurrence in the following terms:

"He [Gonzalo Pizarro] journeyed as far as Quixos, which is north of Quito [the direction toward the Atlantic, that is, *east*, is meant], and the last country [to the east] Guayanacapa ruled over. . . . Being in that country the earth shook terribly; more than sixty houses fell, and the earth opened in many places. There were many thunderbolts and much lightning, so that they wondered at it. There also fell much water, and it thundered heavily." (36)

It therefore seems that Velasco has so misconstrued the statements of his predecessor as to place a possible volcanic eruption that was felt chiefly far to the east of Quito, in the immediate vicinity of that settlement.

Agustin de Zárate was well acquainted with Gonzalo Pizarro and had much intercourse with him immediately on his return to Peru (37). He tells substantially the same story as Gomara (38).

While these two authors, who were not eye-witnesses of events in Ecuador, place the seat of the cataclysm at a considerable distance from the Pichincha, and make no mention of volcanic eruptions, neither Gonzalo Pizarro himself in his letter to the King

dated September 3, 1542 (39), nor Fray Gaspar de Carbajal in his narrative of the journey of Orellana (40), nor any other of the eye-witnesses who were examined under oath at various times during the sixteenth century (41), allude to the phenomena described by Zárate and Gomara. Pedro de Cieza writes of torrential rains and the sudden rise of rivers without mentioning earthquakes (42). The account of the first eruption of Pichincha in 1540 seems therefore either to be due to a misunderstanding of the texts by Velasco or is an imaginary tale by that rather superficial writer.

A document of about 1571 describes the volcanoes around Quito in the following words:

"The said city of Quito has around it some heights that are very tall and round, like wheat-stacks; some of them are covered with snow during the whole year and throw out smoke day and night and sometimes great flames of fire, especially the one in the rear of Quito toward the *Yumbos*, three leagues from the said city [of Quito]. Ordinarily in some months of the year it throws up great quantities of smoke and ashes, making a great noise in the large caverns it has opened in the range. Sometimes the ashes it has emitted have covered the ground for twenty-five leagues around to more than a span in depth, and cloud the earth [cover the sky] by the thickness of the smoke and ashes that come out of the said volcano. Many times there issues so much water from it, when it breaks out, as to flood and burn the timber through which passes the water and stones coming from the volcano, which stones float on the water, giving out fire." (43)

The volcano three leagues from Quito and toward Yumbos can be no other than the Pichincha; and we gather from the document quoted that the mountain was in almost uninterrupted activity between 1534 and 1571. Had the eruption of 1540 been the first one known of that volcano, it would surely have been mentioned in one or another of the numerous Spanish reports of that period. It is therefore probable that Pichincha was already active in pre-columbian time, or at least before the conquest.

Whymper alludes to "traditionary records" of eruptions of Cotacachi, but fails to give details (44).

One of the most authentic traditions respecting volcanic phe-

nomena in Ecuador anterior to the first appearance of Spaniards is apparently that mentioned by Humboldt regarding the collapse of the summit of the Capac-urcu, commonly called "El Altar," in the early part of the sixteenth century. After eight years of decided activity, this peak, until then the tallest in Ecuador, collapsed, covering vast expanses with ashes and pumice (45). This reduction in height must have amounted to more than 3,000 feet, since Reiss and Stübel (46) have determined the present attitude to be 17,730. This event is vaguely alluded to by Garcilasso de la Vega.

That author, basing his information on the writings of Father Blas Valera, mentions violent earthquakes and volcanic disturbances in Ecuador which, according to Indian tradition, must have taken place between 1520 and 1530. "Besides this," he writes, "there occurred great earthquakes and quiverings of the soil, and although Peru is visited by these cataclysms, it was noticed that the earthquakes were more violent than the ordinary ones, and many high peaks crumbled." (47)

We have, therefore, if not always positive evidence, at least significant indications of the precolumbian activity of the Ecuadorian volcanoes of Chimborazo, Cotacachi, Pichincha, Cotopaxi, Capac-urcu, Tungurahua, and Cayambe. Concerning Sangay we have no data, although it is not probable that its eruptions began at a recent period. Of Antisana a violent eruption is mentioned as having taken place about 1620 (48), while Gomara called it a "volcano" in 1553 (49).

It therefore seems that volcanic activity in Ecuador was stronger and eruptions more frequent in precolumbian times and in the sixteenth century than afterward, or at least since the seventeenth century. The really active volcanoes in Ecuador at present are Cotopaxi, Tungurahua, and Sangay. The decrease in activity appears also to have taken place chiefly in the north and west (50)—all provided, of course, that the Indian lore on which the inferences are based is reliable. I am fully aware of the weak points in Indian traditional information and of the obstacles to the establishment of its authenticity and originality (51).

In regard to Peru it must be premised that, at the present time, there is but one active volcano, the Ubimas, in the department of

Arequipa, in extreme southern Peru (52). Misti, near the city of Arequipa, has fumaroles, and once or twice nearly every year a faint column of smoke rises above the crater. The frightful eruption of Omate, a neighbor of the Ubinas, in 1600, is the only volcanic disturbance of magnitude that has taken place in Peru since the conquest (53).

But so much cannot be said of earthquakes, the frequency and violence of which on the Peruvian coast and in certain sections of the mountains are well known. Earthquakes and earthquake waves occurred there long before the sixteenth century, a fact conceded by Garcilasso (54), asserted by Oliva in regard to the vicinity of Lima (55), and repeated by Montesinos about Cuzco. The latter city is noted for earthquakes (56), and if that which Montesinos records concerning such upheavals in prehistoric times is based on untainted Indian folklore, as he claims it is, that section must have experienced at least as great devastations through seismic disturbances in earlier times as those that have occurred since the advent of the Spaniards (57). Indeed, it would even seem that, previous to the nineteenth century, earthquake shocks and tidal waves produced by earthquakes were more frequent and destructive than subsequently, but a comparison of data on their effect is not always reliable (58).

The northern Peruvian Andes, so far as I know, show no present trace of volcanic activity, but there are traditions that point unmistakably to eruptions in precolumbian times.

The *Descripción y Relacion de la Provincia de los Yauyos* in central northern Peru, dated 1586, contains the following Indian tale, evidently primitive :

"The said height of *Pariacaca*, which is the tallest of this range. . . . The Indians of this province relate a pleasing fable which they hold to be true. They say that the *Yungas*, their neighbors of the valley of Lima, entered this province making war, and peopled a village called to-day Lima, which I destroyed for [the sake of] the reduction then made, and that at the foot of this tall mountain of snow called *Pariacaca* they had an idol named *Guallo*, to which they at certain times of the year sacrificed children and women. And that there appeared to them where this tall snowy peak is, an idol called *Pariacaca*, and it said to the Indians who made this sacrifice to the idol *Guallo* which they worshiped :

'Do not sacrifice your wives and children; worship me who does not ask for human blood, but that you offer to me blood of the sheep of the land, which they call *llamas*, with which I will be contented.' And that they had replied to him: 'If we do thus the Guallo will kill us all.' And the Pariacaca answered: 'I will fight him and drive him off.' So for three days and nights the Pariacaca fought the Guallo and defeated him, driving him off to the Andes, which are forests of the province of Xauxa. The Pariacaca became the tall peak and mountain of snow which it is to-day, and the Guallo another mountain of fire. And they fought in this way: the Pariacaca threw so much water and hail that the Guallo could not stand it, so he vanquished him and drove him to where he is, as told. And the much water he threw at him became the lake that to-day is called Pariacaca, [along] which is the royal road from Cuzco to Los Reyes. And to-day the Indians believe this and climb to the highest point of this snowy mountain to offer their sacrifices to the Pariacaca, by another name *Yaro*, of which they say it remained a snowy mountain since the said contest." (59)

This tale was also reported in 1608 by Father Francisco Dávila, the former priest of Huarochiri (60). Pariacaca is the name of a well-known and very lofty peak, perpetually snow-capped, in the interior northeast of Lima. Its altitude, like that of most summits in northern and central Peru, is unknown (61). The Guallo I have not yet been able to locate.

The above bears every mark of primitive Indian tradition. It describes a phenomenon of considerable magnitude—the rise of a mountain through the subsidence of another, or, perhaps, the formation of an eruptive cone. The document alludes to the form of the summit of Pariacaca also:

Pariacaca, which is a height of snow that in its highest part makes what appears to be a saddle, and on the slopes to the west, as well as on the slopes to the east, on each side, it forms a lake of water from the quantity of snow it melts." (62)

Whether these depressions might indicate the crumbling of an old crater, as in the case of Caruairazu in Ecuador (63), and the "Altar," is problematical.

Information of a more positive nature is furnished by Indian tradition, corroborated by topographic and geologic testimony, on

a volcanic outbreak that took place, in precolumbian times, much farther south, in the department of Cuzco. About 12 miles north of the little town of Sicuani (the terminus of the Cuzco branch of the railroad from Arequipa to Bolivia) are well-preserved architectural remains of the Inca (64). At a short distance from these ruins toward the east terminates a well-defined lava flow that issued from a crater called Quimsa-pata (65). This volcano, which has shown no trace of activity in historic times, is indicated on Pentland's map (66). We visited Rajti, as the place is usually called by Indians, in August, 1894. Its official name is San Pedro de Cacha. We saw Quimsa-pata, not from the west but from the south, distinctly as a cup with three prongs (67), a form common to other craters. There are two lava streams. One of these flowed as far as the Cuzco road, and is more ancient than the ruins, since they stand on it; the other may be more recent than the buildings, yet there are terraces (*andenes* in Quichua) in crags and crevices at the base of the flow. That both streams issued from the Quimsa-pata crater cannot be doubted.

With this site there are connected traditions that were related to the Spaniards so soon after their arrival that it is hardly possible more than slight changes could have been wrought by contact. I have already discussed these traditions in connection with the myths of Viracocha and Tonapa, in Peru and Bolivia (68). These names may be different appellations for one and the same mythical being. Cieza, who visited Cacha in 1549 (69), was told of a tall white man who performed wonderful cures and also changed the appearance of the country. He came to Cacha, where the natives attempted to stone him, but "they saw him kneeling down, his hands raised to heaven as if invoking divine aid in the straits in which he found himself. The Indians further affirm that forthwith there appeared in the heavens a fire so great that they all expected to be burnt, so that, filled with great awe, they went to him whom they had desired to kill and with great clamor entreated him to free them from the peril, since they saw it came to them for the sin they had committed of intending to stone him. They saw that forthwith, commanding the fire to stop, it went out, the rock, through the conflagration, remaining so burnt and eaten that it became a witness to the truth of what has

been written, for it is so charred and light that, even if large, it may be lifted with the hand." (70) Juan de Betanzos heard the story several years before Cieza (71), and his version agrees almost textually with that of the former; still, his description of the site deserves to be quoted:

"I have seen the burnt mountain and the rock of it, and the burnt [section] is more than a quarter of a league [long]. And the Guaca of this Viracocha is in front of this burnt space a stone's throw from it, on a level and on the other side of a brook that runs between the burning and the Guaca." (72)

When we visited the ruins there was, between them and the flow of lava, what we took to be a pond or pool, although it may have been the brook or creek mentioned by Betanzos (73).

Later authors have only repeated the story told by Betanzos and Cieza (74). The Indian Salcamayhua, at the beginning of the seventeenth century (75), related the tale briefly as follows:

"The one [they] say that on a very tall height called *Cachapucara* there was or [they] had an idol in the shape of a woman, to which they say that Tunapa took great aversion to the said idol, and afterward set fire to it, and the said height burnt with the said idol, bursting and melting the said mountain like wax, [so] that to this day there are marks of that fearful and unheard-of wonder." (76)

In view of the testimony offered by the site and of the early date at which the tradition was told the Spaniards, it appears authentic and primitive; yet it might be that the sight of the flows of lava, so prominent at Cacha, resulted in a myth of explanation. We might suspect the tale to be not a recollection but an "observation myth," and hence the eruption to have occurred long before the memory of man. At any rate it remains established that a volcanic outburst took place near Sicuani, in southern Peru, during pre-columbian times (77).

An official report on the province of Collaguas, now part of the department of Arequipa, in southern Peru, written in 1586, states:

"There are in it two kinds of people, distinct in dress and language. The ones call themselves *Collaguas*, a name which comes to them from

ancient times. According to notice transmitted from father to son, they hold that they originate from a Guaca or place of worship of ancient date, which is in the province of *Velilli*, that confines with this, and it is a mountain covered with snow after the manner of a volcano, different from the other mountains thereabout, and they call it *Collaguata*. They say that from this height, or from the inside of it, there issued many people and descended to this province and valley, which is this river along which they are settled, and they defeated those who were natives and drove them off by force, while they remained and, since this volcano from which they claim to proceed is named *Collaguata*, they call themselves *Collaguas*. The name itself does not signify anything, but is derived and originates from the said volcano of *Collaguata*, which anciently was worshipped by them." (78)

The mountain alluded to is the *Solimana*, which, while no eruption of it is known within historical times, has been regarded as a possibly extinct or at least slumbering volcano (79); hence the Indian story is supported by physiographic evidences, so far as interpretation of it in the sense of precolumbian eruptions go.

In the southern provinces of Peru there are other lofty and apparently isolated peaks bearing the type either of trachytic upheavals or of eruptive cones. The loftiest of these, and, so far as known, the highest mountain in the western hemisphere, is the *Koropuna*, north of *Arequipa* (80). According to *Cieza* there was a shrine on its upper slopes, where the Indians constantly made sacrifices and performed many ceremonies. "There were always people there from many parts, and the demon spoke there more freely than at the oracles [shrines] aforesaid, for he continuously gave replies, not only occasionally as at the others. And even now, through some secret of God, it is said that fiends go about there visibly." (81) *Antonio Raimondi*, a native of Italy and a distinguished naturalist and scientific explorer of Peru, repeatedly classed both *Koropuna* and *Misti*—the magnificent peak overlooking the city of *Arequipa*—among the volcanoes (82). *Misti*, however, is not extinct, as *Raimondi* assumed; it is only dormant; but there appears to be no reliable testimony in regard to eruptions after *Arequipa* was established at its base in 1540 (83). Of precolumbian activity of *Misti* there are some documentary and traditional indications. An official report of 1649 states:

"Arequipa is situated on the slopes of one of these volcanoes of such incomparable greatness and height that it overlooks the whole cordillera, and can be seen from so far out at sea as to be very useful to navigators of these coasts. It has in its summit a wide, awful, and exceedingly deep mouth. Nothing is written about it having broken out, but the tongues, which were much anterior to the pens, affirm from tradition that it burst forth terrifically at some period very distant from ours." (84)

It is not inappropriate to state here that the lava of Misti is augitic. While Cieza was in Peru, about the year 1550, an eruption of Misti was feared (85).

The history of the Jesuit college of Arequipa, dated 1600, which contains the most circumstantial narrative of the awful eruption of Omate in that year (86), says of Misti: "Fame has it that this volcano in times past vomited fire and pumice stone and finally water." (87) While Omate was in full eruption, it was said, Indian sorcerers consulted about the cataclysm and learned that Omate had spoken to Misti, proposing they should combine to destroy the Spaniards, but Misti declined on the ground that it was now a Christian, having been named (the volcano of) Saint Francis (88). Since it does not seem that there has been any postcolumbian eruption of Misti, its activity apparently ceased in precolumbian times, the faint traces already mentioned excepted.

Omate (the outburst of which may be classed with that of the Consequina in 1835, of Krakatoa in Java, in 1883, and of the recent explosion of Mont Pélée on the island of Martinique) does not seem to have been in eruption, at least within historic times, either before or after its great outburst in January, 1600. That catastrophe came suddenly and unexpectedly. So little did the villagers dream of the nature of the mountain that, since the occupancy of the country by Spaniards, they cultivated grapes and other fruits about the volcano (89). Therefore if Omate was active before 1600, it must have been prior to European colonization.

The Indian Salcamayhua has preserved the following fragments of lore which may relate to volcanic phenomena in the fifteenth century, in southwestern as well as in southeastern Peru. At the time of the Inca war-chief Yupanqui (possibly the same as Tupac Yupanqui)—

"They say that news came how a miracle had happened at Cuzco, how a *yaurca* or *amaro* [large snake] had come forth from the height of *Pachatusan*—a very ugly beast, half a league long and big, two and one-half fathoms in breadth, and with ears and teeth and beard. And [it] comes by *Yuncaypampa* and *Sinca*, and thence enters the lagoon of *Quibipay*; thereupon there come out of *Asoncata* two *sacacas* of fire and pass [over] to *Potina* of Arequipa, and another [one] comes from lower down than Guamanca, which is three or four very tall heights covered with snow, the which [it is said, or they say] were animals with wings and ears and tails and four feet, and on the shoulders many spines like of fish, and from afar [they] say that it appeared to them all fire." (90)

Analyzing this rather incoherent statement, it reduces itself to the following: The two *sacacas* (an Aymará, not a Quichua word, 91), aflame, are represented as going from the *nevada* of Ausangate, east of Cuzco, to southeastward of Arequipa. Another fiery object is said to have come from Huamanca (Guamanga), or Ayacucho, between Lima and Cuzco, in the mountains; hence the presumption is that several eruptions occurred almost simultaneously in central and southern Peru during the course of the fifteenth century. The simultaneous appearance of several comets (which the description of Salcamayhua might also recall) is not easily conceivable, and it seems more probable that the fiery serpents, etc., indicate streams of lava. Later on a famous fetish is mentioned (in the northern sections of the present department of Arequipa) as vomiting fire, which might be another allusion to some volcanic outbreak (92).

Cuzco and its vicinity are noted for frequent and violent earthquakes. If the work of Fernando de Montesinos were reliable, we would find in it several references to precolumbian earthquakes of considerable magnitude. This author, pretending to derive his information from reliable Indian tradition, writes of a century of disastrous seismic commotions, beginning with the first cycle of our era and extending into the second (93). Subsequently he refers to eruptions and earthquakes in Ecuador (94). But Montesinos is a very suspicious source, and all that can be safely admitted from his assertion is that seismic phenomena were as active at Cuzco in early times as they are to-day. The Bolivian Andes, generally called

the "Royal Cordillera," has no trace of eruptive rocks (95); and I have not been able to obtain any Indian lore that even remotely might be construed as hinting at precolumbian volcanic disturbances in that great eastern chain. But the lore of the Aymará is yet imperfectly known. The coast range, which in a few of its peaks, like the Sarjama, or Sajama, is taller than the other, has dormant if not extinct volcanoes. Such is the one mentioned, which is said to rise more than 22,000 feet, the Huallát-iri, and perhaps the Parina-kota (96). The form of the "Tetillas" near Sajama also recalls eruptive cones. Farther south there are active volcanoes close to the Bolivian frontier, within Chilean territory (97). It might be that the tales recorded by Cieza about the coming of "Viracocha" from the south, with "such great power that of heights he made plains and of the plains great mountains" (98), are an allusion to volcanic phenomena in precolumbian times among the elevated peaks of the Bolivian coast range. If *Sarjama* is the true name of what now is generally called *Sajama*, it would mean "he (or one) who starts or rises" (99), in which event it is either in allusion to the shape of the mountain, which rises to a great height as a steep, isolated pyramid, or, perhaps, a dim recollection of ancient upheavals.

With the exception of its southwestern portion, which borders on Chile, Bolivia has been visited but little by earthquakes within historic times. Of these visitations that of 1582 worked considerable damage (100), and that of May, 1896, was also of considerable violence (101). Of precolumbian seismic catastrophes I have not, as yet, found any allusion aside from what the Viracocha tale above mentioned might indicate. The *puna* about La Paz is traversed by trachytic dykes and zones and covered in spots with a thin volcanic layer (102). That which has been said about an eruption of the mountain called Tuanáni, near Kamata, in the province of Muñecas in the eastern province of La Paz, has subsequently been disproved. That peak, although smaller in mass, resembles the "Altar" in Ecuador; and it may have been a volcano, shattered by an explosion in times long past (103).

I may be permitted to allude here to a similarity in the distribution of volcanoes in the northern and southern parts of the Amer-

ican continent. In each hemisphere there are found two main groups—a northern and a southern. Thus there is in North America an accumulation of craters in Oregon, Washington, Alaska, and California, near the Pacific coast (104), and another, more numerous cluster, beginning in Mexico and extending almost as far south as Panama. East of these two groups North America has no volcanoes; and they appear in greatest number where the mainland narrows.

In South America the region east of the Andes is free from eruptive peaks; they hug the Pacific coast. There is a north-western group, embracing the volcanoes of Colombia and Ecuador, and an extreme southern one, beginning in southwestern Peru and extending to the southern extremity of the continent in Chile. The former contains a relatively small number, the latter a much greater one, Chile alone claiming at least forty. How many of these are active at present or were active in the early part of the sixteenth century is not yet ascertained, as there is practically no available material on the subject of precolumbian eruptions of Chilean volcanoes.

The historian Alonzo de Gongora Marmolejo, in his work finished in 1575, states: "There are also throughout the Cordillera many volcanoes that commonly [ordinarily] emit fire, and more in winter than in summer." (105)

Alonso de Ovalle, in 1646, mentioned sixteen volcanoes "that have broken out at different times, and caused effects of no less wonder than stupefaction, as well as fright in all the land." (106) Felipe Gomez de Vidaurre, in 1748, spoke of fourteen volcanoes and alluded to that of Peteroa (about lat. $35^{\circ} 50'$ S., in the department of Curico) as "this ancient volcano." (107)

Alonso de Ercilla, the poet historian of Chile (whither he went in 1554, fourteen years after the conqueror Valdivia), states that earthquakes were of frequent occurrence at this time and describes the volcano of Villarica as constantly active. (108)

Beyond a probability of precolumbian eruptions in Chile, especially of the peaks of Peteroa and Villarica, the above indications do not apply.

Cosme Bueno, in the latter part of the eighteenth century,

asserted that the Indians of the district of Concepcion worshiped volcanoes, but the statement is not sufficiently clear to establish this as the survival of an ancient custom. (109)

Vidaurre relates the following tradition current among Chilean aborigines during his time :

" Among the fables which these Indians tell, some knowledge of the universal deluge is disclosed, as clearly shown by the following practice during the great earthquakes. When one of these occurs, all run at once to the mountains called by them *tenten*, that is, to such as have three points [end in three summits]. To these [tops] they carry food for many days, and wooden platters on their heads. They say that in ancient times there came a great deluge which inundated the whole land except the *tenten*s, for a certain virtue [faculty] they have of floating on the waters. For this reason they [the Indians] seek to escape, fearing lest the sea, after such a violent movement of the land, should turn again to drown it; also that they carry these wooden platters on their heads because it might happen that the waters should rise so high that the *tenten*s would strike the sun and their heads be burned if they did not use that precaution. " (110)

Subsequent authors, including the well-known Jesuit historian Molina, have copied this statement of Vidaurre with slight variations (111). The tale, if primitive, implies seismic disturbances in Chile during periods of comparatively remote antiquity.

Should the folklore herein contained be authentic and pre-columbian, as some parts of it undoubtedly are, we might infer that volcanic activity in western South America was greater at certain times previous to the Spanish conquest than it is now. Thus the active volcanoes in Ecuador are reduced to three or four, whereas there are unmistakable evidences of a number of others having been in eruption long before, but have become either extinct or are temporarily slumbering. Between Ecuador and southern Peru volcanic activity ceased before the advent of the Spaniards. In regard to earthquakes the testimony is more indefinite, although it would seem that there also has been a gradual decrease in frequency as well as in violence. This can be inferred, not from data anterior to the sixteenth century, but from a comparison of the numbers of unusually

strong seismic phenomena in the sixteenth, seventeenth, eighteenth, and nineteenth centuries. Since the data concerning these disturbances do not pertain to the domain of Indian tradition and folklore, they are not appropriate to this paper.

NOTES

1. Piedrahita was a native of what now is Colombia, but was New Granada in his time. According to Joaquín Acosta (*Compendio histórico del Descubrimiento y Colonización de la Nueva Granada en el Siglo décimo sexto*, 1848, p. 385 et seq.) he was born at Bogotá in the beginning of the seventeenth century — "fué hijo legítimo de Domingo Hernandez de Soto Piedrahita y de Catalina Collantes, y bautizado en la parroquia de las Nieves." He became Bishop of Santa Marta in 1669 (p. 386), Bishop of Panamá in 1676, and died at Panamá in 1688 (p. 387). His age at the time of his death being given as seventy, he must have been born in 1618. The title of his book is *Historia general de las Conquistas del Nuevo Reyno de Granada* (Antwerp, 1688). The names, or titles, of Bochica are from that work (lib. 1, cap. III, p. 17). Nemte-requeteva is considered also by Fray Pedro Simon as distinct from Bochica. Ternaux-Compans, *Essai sur l'ancien Cundinamarca*, p. 8.

2. Piedrahita, *Historia general* (lib. 1, cap. III, p. 18). The estimate of the dimensions of the cataract given by Piedrahita is more than liberal. Humboldt, *Vues des Cordillères et Monuments des peuples indigènes de l'Amérique* (1816, vol. 1, p. 92), states: "La rivière se rétrécit beaucoup près de la cascade même, où la crêvasse, qui paraît formée par un tremblement de terre, n'a que dix à douze mètres d'ouverture. A l'époque des grandes sécheresses, le volume d'eau qui, en deux bonds, se précipite à une profondeur de cent soixante-quinze mètres, présente encore un profil de quatre-vingt-dix mètres carrés.

3. According to Joaquín Acosta (*Compendio*, p. 380), Simon was born at La Parrilla in 1574. The date and place of his death are unknown to me.

4. *Noticias historiales de las Conquistas de Tierra firme* (MS. in the Lenox branch of the New York Public Library), pt. II, noticia quarta, cap. IV, fol. 260, has *Chuchauiva*; fol. 265, *Cuchauiva*.

5. *Ibid.* (pt. II, noticia IV, fol. 265): "El fundam^{to} q^o hubo para adorar estos Yndios con ofrecim^{to} el arco del cielo Cuchauiva aunq^{ue} embuelto en fabulas fue de esta manera. . . Fundan sobre esto su razon diciendo q^{ue} por ciertas cosas qe havia usada con ellos al parecer en su agravio el Dios Chibchachum, le murmuraban los Yndios y le ofendian en secreto y en publico: con q^{ue} indignado Chibchachum tratò de castigarlos anegandoles sus tierras, para lo cual criò ò trajo de otras partes los dos rios dichos de Sopo y Tibito, con que crecieron tanto las aguas del valle, q^{ue} no dandose manos como dicen la tierra del valle à consumirlas se venia à

anegar gran parte de ella, lo q^e no hacia antes que entraran en el valle los dos rios, porq^e el agua de los demas se consumia en las labores y sementeras sin tener necesidad de desagüe." To their entreaties Bochica, standing on a rainbow and holding his golden rod, responded: "Y diciendo arrojó la vara de oro hacia Tequendama, y abrió aquellas peñas por donde aora pasa el rio: pero como era la vara delgada no hizo tanta abertura como era menester para las muchas aguas q^e se juntan los inviernos y así todavia rebalsa, pero al fin quedó la tierra libre para poder sembrar y tener el sustento."

6. Ibid. Guayacanes are logs of the guayaco tree (*Guayacum officinale*).

7. *Vues des Cordillères et Monuments indigènes*, I, p. 92.

8. For quite a while the writings of Quesada were believed to have been lost. Joaquín Acosta (*Compendio*, p. 373) says about the conqueror of New Granada: "Ya de edad de cerca de setenta años, se resolvió á escribir su compendio histórico ó ratos de Suesca (que parece que la obra tenia uno y otro titulo) pero desgraciadamente no se consideró digna de imprimirse aunque se remitió á España, lo que junto con los pasajes que el Padre Zamora y el obispo Piedrahita nos han conservado de este trabajo, inclinan á hacer un juicio no muy favorable de la obra escrita por antiguos recuerdos, algunos de los cuales son evidentemente inexactos. Este manuscrito se ha perdido, y tambien la coleccion de sermones que por aquel tiempo compuso el mismo mariscal con destino á ser predicados en las festividades de Nuestra Señora." Piedrahita (*Historia general*, pp. 17, 22, 23) refers to Quesada in regard to ceremonials, so that it might be that details concerning Bochica were taken from the writings of the conqueror. He refers to a book written by Quesada which he consulted in manuscript (lib. 1, cap. 9, 10). Of this work he states: "No fue tan mal afortunada esta inclinacion, que no se alentasse con otro acaso con que me encontré en vna de las librerias de la Corte con el Compendio historial de las conquistas del Nuevo Reyno, que hizo, escribió, y remitió á España el Adelantado Gonçalo Ximenez de Quesada; pero con tan mala estrella, que por mas de ochenta años avia passado por los vltres de manuscrito entre el concurso de muchos libros impresos." According to Acosta (*Compendio*, p. 391) the Dominican Fray Alonso de Zamora also consulted, for his *Historia de la Provincia de San Antonio del Nuevo Reino de Granada, del orden de Predicadores* (Barcelona, 1701), "El Compendio historial del Adelantado Quesada firmado de su nombre." Since the days of Acosta much bibliographic work has been done in Spain, and to the late Don Marcos Jiménez de la Espada, among others, we owe very valuable discoveries. It is now ascertained that Quesada wrote at least two works, one of which was printed. The earlier one is the *Epítome del Nuevo Reino de Granada*, written in 1539 and still in manuscript in the National Historical Archives of Spain. The other obtained the imprimatur in 1568 and bears the title *Tres Ratos de Suesca*. Of the former Espada (*Relaciones geográficas de Indias*, vol. 1, p. xlii), says: "Donde el insigne granadino y autor de los Tres Ratos de Suesca resume discretamente los hechos principales de su conquista y lo mas notable del pais y

de las gentes que descubrió." Of the *Ratos de Suesca* he states (p. xlv): "Libro que muy pocos han lograda ver." Since both Piedrahita and Zamora claim to have consulted the *Compendio historial* in manuscript, it might seem that they mean by it the *Épitome*, in which event it is not unlikely that the legends, etc., recorded by them are authentic or at least but little tainted by contact. Should they, however, have reference to manuscript copies of the *Ratos de Suesca*, then the strictures on their source by Acosta may to a certain extent be well founded and the traditions a subject for caution.

9. *Historia natural y general de Indias* (ed. 1852, vol. II, and I of pt. II, lib. XVII, pp. 357-413). He gives the full text of the report on the conquest of New Granada, in 1539, by Juan de San Martín and Antonio de Lebríxa. But he also states that at least part of his information was obtained from Quesada himself (p. 410): "En el qual se dará fin á la relacion que yo oye del licenciado Gonçalo Ximenez de Quesada." The silence of Oviedo about Chibcha traditions is therefore somewhat strange.

10. *Primera parte de la Crónica del Perú* (in vol. II of Vedia, *Historiadores primitivos de Indias*, p. 386): "Mas adelante está una sierra alta, en su cumbre hay un volcan, del cual algunas veces sale cantidad de humo, y en los tiempos pasados (según dicen los naturales) reventó una vez y echó de sí muy gran cantidad de piedras. Queda este volcan para llegar á la villa de Pasto, yendo de Popayan como vamos, á la mano derecha."

11. See *American Anthropologist*, n. s., VII, 1905, pp. 261, 262, and note 31. This eruption must have taken place prior to 1539.

12. *Historia del Descubrimiento y Conquista de la Provincia del Perú, y de las guerras y cosas señaladas en ella* (Vedia, *Hist. primitivos*, II, p. 465): "Y con todo esto, nunca se dió entero crédito á lo que los indios decian cerca destos gigantes, hasta que siendo teniente de gobernador en Puerto Viejo el capitán Juan de Olmos, natural de Trujillo, en el año de 543, y oyendo estas cosas, hizo cavar en aquel valle, donde hallaron tan grandes costillas y otros huesos, que si no parecierán juntas las cabezas, no era creible ser de personas humanas, y así, hecha la averiguación y vistas las señales de los rayos en las peñas, se tuvo por cierto lo que los indios decian, y se enviaron á diversas partes del Perú algunos dientes de los que allí se hallaron, que tenía cada uno tres dedos de ancho y cuatro de largo." Among the earlier references to these large Ecuadorian fossil remains is that of 1605 in the *Descripción de la Gobernación de Guayaquil* (*Documentos inéditos de Indias*, vol. IX, p. 273): "Colonchillo está poblado en el puerto de la punta de Santa Elena, veinte y cinco leguas de Guayaquil y siete de Colonche, que es de donde se proveen de las cosas que les faltan: la tierra es estéril y sin aguas; beben de pozos, especialmente de unos que llaman de los Gigantes, que según relación de los indios viejos, los hubo en aquella tierra, no nacidos en ella, sino venidos de otras partes. Descúbreñse muchos huesos de estraña grandeza, especialmente se hallan conservados en los mineros de alquitran, de que hay pocos." It seems therefore that the tale is authentic as a primitive local Indian tradition.

13. Zárate, *Historia del Descubrimiento* (p. 465): "Vieron los españoles en Puerto Viejo dos figuras de bulto destos gigantes, una de hombre y otra de muger." It should not be lost sight of that the "giants" had no women with them. It might also be asked whether the stone "seats," or benches, of which there are several in various museums, representing usually a human figure on all fours, bearing on the back a seat of some form, are perhaps related to the "bulto destos gigantes" alluded to by Zárate. These seats come from the same region. The earliest notice the Indians had of the appearance of the Spaniards was a short time before the death of Huayna Capac, or about 1528. The manner in which the whites were then described was, that they were quite natural beings, except for the beards, which appeared strange. The Indians from the mountains had even a very poor opinion of the physical qualities of the Spaniards until the affair at Caxamarca convinced them of the contrary.

14. *Historia de las Guerras civiles del Perú* (vol. III, cap. LXVI, p. 566). I copy only that part which relates to the supposed negotiations with the chief, Tupac Yupanqui (p. 567): "Temieron con gran temor, por lo qual luego a la hora auissaron dello por la posta a Topa Ynga Yupanqui, que a la sazón estava en la cibdad del Cuzco . . . El Ynga Topa Ynga Yupangue, por sustentar su reputacion y conservar en paz a sus vasallos, embio al curaca del valle de Chimo y al Gobernador Ynga que tenia en el pueblo de Piura, que eran grandes señores, con otros muchos yndios principales, por embajadores para que considerando que gentes eran, hablassen con ellos y tratassen de paz si la querian tener con el, y si no que el les daria tanta guerra quanta ellos verian, de que les pesasse." A certain number of these giants accepted the proposals and settled; others began to ravage the country, but they also finally submitted. There is no foundation for these stories in Inca traditions, and the tales about Tupac Yupanqui are from the second half of the fifteenth century. Gutierrez has either elaborated the giant tale or has been misinformed.

15. *Historia de las guerras civiles del Perú* (III, p. 573): "Despues, andando el tiempo, llego el marques Pizarro al pueblo de Chimo, en donde hallo otros huessos y calaueras de gran disformidad y vnas muelas de tres dedos de gordor y de cinco dedos de largor y tenian un verdugo negro por de fuera." Cobo (*Historia del Nuevo Mundo*, vol. III, p. 110) mentions the discovery of large fossil bones near Truxillo also, but says it occurred subsequent to 1543: "Otros muchos huesos de la misma proporcion se han descubierto despues acá en otras partes de aquella misma provincia y de la de Trujillo." This indicates that the latter finds were made posterior to the year mentioned by Zárate.

16. In this all the older sources agree. That which is anterior varies so much between author and author that suspicion naturally arises as to its authenticity. The time of Tupac Yupanqui is determined by his successors, of which there were two — Huayna Capac and Huascar. Atahualpa was an intruder from Quito, and he lived at the same time as Huascar. Hence from 1532, or 1533, the year in which both Atahualpa

and Huascar were killed, we are obliged to go back two generations, or about sixty years, to the time of Tupac Yupanqui. The arrival of the "giants" would have taken place about the middle of the fifteenth century. It is hardly probable that, from a time so near to that of the discovery of Peru, no tales should have survived of an event as portentous as that of the coming of giants from parts unknown. It should not be overlooked, also, that Tupac Yupanqui is credited by Pedro de Sarmiento Gamboa, an author whose work has not yet been published, with an imaginary expedition to the islands of "Ahuachumbi" and "Ninachumbi," supposed to have existed in the Pacific ocean, not far from the Peruvian coast, at about the time the "giants" would have appeared near Puerto Viejo. I gather my information on the statements of Sarmiento about the islands mentioned from the preface to the *Tres Relaciones de Antigüedades Peruanas*, Madrid, 1879 (p. xxiv), by Marcos Jiménez de la Espada. He quotes Sarmiento: "No quisieron tomar la primera tierra que yo desubri 200 y tantas leguas de Lima en 14°, que son las islas llamadas Ahuachumbi y Ninachumbi, á donde fué Topa Ynga Yupanqui, como en la Historia de los Ingas del Perú verá V. M. . . ." See also Wilhelm Meyer, *Die in der Goettinger Bibliothek erhaltene Geschichte des Inka-reiches von Pedro Sarmiento de Gamboa* (1893, II, p. 9, et seq.).

17. It is not easily conceivable that such an elaborate story could have been invented by Indians within ten years of the arrival of Pizarro. The tale might be a "myth of observation" based on the sight of the large fossil remains.

18. *Descripción de la Gobernación de Guayaquil* (p. 273). See Note 12.

19. Whymper (*Travels amongst the Great Andes of the Equator*, 1892, p. 73, note 2) quotes Reiss and Stübel for the figures, which are 17,464 feet. The Sangay is the most southerly of the Ecuadorian volcanoes.

20. Whymper (op. cit., p. 343) gives 16,690 feet, after Reiss and Stübel.

21. Reiss and Stübel make it 115 feet lower.

22. Ancient lava streams on Chimborazo are mentioned by Whymper, op. cit., p. 64 et seq.

23. So far as I know, there is no allusion in Indian tradition to meteorite falls in western South America in precolumbian times, except the luminous display connected with the tale of the giants, provided this should eventually be established to have been a meteor.

24. Espada places the eruption in 1533, but it is certain it took place in the year following, while Pedro de Alvarado was marching on Quito from the coast. Cieza (*Primera Parte de la Crónica*, cap. xli, p. 393) states: "Y parece ser cierto lo que cuentan estos indios deste volcan, porque al tiempo que el adelantado don Pedro de Alvarado, gobernador que fué de la provincia de Guatimala, entró en el Perú con su armada, viniendo á salir á estas provincias de Quito, les pareció que llovió ceniza algunos dias, y así lo afirman los españoles que venían con él. Y era que debió de reventar alguna boca de fuego destas, de las

cuales hay muchas en aquellas sierras, por los grandes mineros que debe de haber de piedra zufre." Cieza does not identify the volcano with Cotopaxi or any other, although from the line of march of Alvarado it is more than likely it was the former mountain. Espada (*Relaciones Geográficas*, I, p. 26, note b) admits it. The document commented on by him is the report of the Licentiate Salazar de Villasante, *Relacion general de las Poblaciones españolas del Perú*, written about 1568, in which it is stated (p. 26): "Como hizo otro volcan que reventó once leguas de alli, entre El Atacunga y Mulahaló, pueblos de Indios, el tiempo que entraron españoles en aquella provincia, y anegó seis ó siete pueblos de indios y echó tanto piedra pomez, que está más de dos leguas los campos llenos della, tan grandes como ruedas de molino." Since Benalcázar, who was the first Spanish leader to reach Quito, left Piura in October, 1533, his arrival at Quito could hardly have taken place before the year 1534. Velasco (*Histoire de Quito*, French transl. by Ternaux-Compans, vol. II, p. 29) affirms the eruption was of Cotopaxi: "C' était le volcan de Cotopaxi qui faisait sa seconde éruption; j'ai déjà dit plus haut que la première avait eu lieu la veille du jour où Atahualpa fut fait prisonnier." This would allude to an outbreak in July, 1532, but Velasco is a doubtful source in many cases.

25. *Primera Parte*, p. 393.

26. Whympier, *Travels*, p. 343.

27. On his ascent of Illiniza, Whympier (p. 131) met volcanic sand at an altitude of 15,000 feet. Villasante (*Relacion general*, p. 18) calls the Liniza (Illiniza) a "volcan," but adds, from the sayings of an Indian: "A do se dice que en la cumbre está un ofrecimiento de indios á sus ídolos, de mucho oro y plata, de más de un millon, que ofrecian ántes que españoles entrasen en la tierra." Hence if Illiniza once was an active volcano, it went to rest untold centuries before the sixteenth.

28. In his description of the route from Lake Titicaca to La Paz.

29. Lava streams on Chimborazo are mentioned by Whympier, *Travels*, p. 64 et seq. Fray Juan Paz Maldonado, *Relacion del pueblo de Sant Andres Xunxi* (*Rel. geogr.*, III, p. 150), says: "Es tierra templada, está á el pié del volcan llamado Chimborazo, que quiere dezir en su lengua del Inga, 'cerro nevado de Chinbo', el cual tienen en grande beneracion y lo adoraban y adoran, aunque no á lo descubierto, porque dicen que nascieron dél. Sacrificaban en este cerro muchas doncellas virgenes." (p. 151:) "Dicen los indios que el volcan del Chimborazo es el varon, y el de Tungurahua es la hembra, y que se comunican yendo Chimborazo á ver á su muger y la muger al marido y que tienen sus ayuntamientos."

30. Sancho Paz Ponce de León, *Relacion y Descripción de los Pueblos del partido de Otavalo*, 1582 (*Rel. geogr.*, III, p. 113).

31. *Travels* (p. 337) mentions lava streams.

32. *Histoire de Quito*, transl. by Ternaux-Compans, vol. II, p. 164. The statement of Velasco appears doubtful in the light of other information. Thus Pedro Rodríguez de Aguayo, *Descripción de la Ciudad de Quito y vecindad de ella* (*Relaciones geográf.*, III, p. 56) states the following: "Tiene á la redonda de sí la dicha ciudad de Quito algunos cer-

ros muy altos y redondos à manera de monton de trigo, de los cuales algunos dellos están todo el año cubiertos de nieve y echan humo noche y dia y algunas veces llamas de fuego grandes; especialmente el que está à las espaldas de la dicha ciudad de Quito, hacia los Yumbos, tres leguas de la dicha ciudad, del cual ordinariamente echa de sí grandísima cantidad de humo y ceniza, y hace grandísimo ruido en las cavernas grandes que tiene hechas en la sierra; Y algunas veces ha sido tanta la ceniza que ha caído, que ha cubierto el suelo más de un palmo más de veinte y veinte y cinco leguas de donde está el dicho cerro, y escurecer la tierra con la espesura del humo y ceniza que salía del dicho volcan." This indicates considerable activity of the Pichincha in the sixteenth century. Many are the eruptions of that mountain that have been mentioned. The document entitled *La Ciudad de Sant Francisco del Quito, 1573* (*Rel. geogr.*, III, p. 61) alludes to a violent outpour of ashes on October 17-18, 1566. The *Description y Relacion del Estado ecclesiástico del Obispado de San Francisco de Quito, 1650* (*Relaciones*, apéndice, p. 65), alludes to an eruption on September 8, 1575. The two Spanish officers who accompanied La Condamine and Bouguer to South America as geodetic and astronomical assistants, Antonio de Ulloa and Jorge Juan, assert in their final report to the King, in 1748, that Pichincha had precolumbian eruptions. *Relacion histórica del Viage hecho de orden de S. M. à la América meridional* (parte 1ª, tomo 10, lib. v, cap. IV, p. 351): "El cerro de Pichincha es volcán, y reventó en tiempo de la gentilidad; lo que se ha repetido en otras ocasiones despues de la Conquista." La Condamine himself (*Journal du Voyage fait par ordre du Roi à l'Equateur, 1751*, p. 147) mentions eruptions of Pichincha in 1538, 1577, and 1660. Humboldt (*Kosmos*, IV, p. 266) enumerates eruptions of the mountain in 1539, 1560, 1566, 1577, 1580, and 1660. Villasante (*Relacion general*, pp. 26, 45) alludes to a violent outbreak in 1560 and to another in 1566. Had the eruptions of Pichincha in the sixteenth century been new, hence unexpected, phenomena, one or the other of the authors cited would have stated the fact.

33. *Histoire de Quito* (II, p. 164): "Les troupes de Pizarro étaient encore dans ce pays lorsque survint l'éruption du volcan de Pichincha, au pied duquel est construite la ville de Quito. On ne savait pas que ce fut un volcan, les indiens eux-mêmes l'ignoraient; cette éruption doit donc être regardée comme la première."

34. José Toribio Medina (*Descubrimiento del Río de las Amazonas, 1894*, p. lx), speaking of Francisco Pizarro, says: "Cuando supo que su amigo, deudo y paisano Gonzalo Pizarro había presentado su título de gobernador de las provincias de Quito, en las que entraban Guayaquil y Puerto Viejo, al Cabildo de aquella ciudad el 1º de Diciembre de 1540." "Habiendose hecho cargo del gobierno el 1º de Diciembre de 1540" (p. lxiii). The date of Pizarro's departure from Quito is not exactly known. Medina admits (p. lxx) that the first of his soldiers left "al finalizar el mes de Febrero de 1541." Pizarro himself left probably in March of same year. The cataclysm, in the shape of a violent earthquake, was felt, or rather it is stated by some authors that it was felt, by

the Spaniards previous to their reaching Zumaco, a place afterward named Avila and which Gonzalo Pizarro in his letter to the King, Sept. 3, 1542, places 60 leagues from Quito. — *Carta de Gonzalo Pizarro al Rey, fecha en Tumebamba* (*Descubrimiento*, etc., Documentos, p. 86). Zárate (*Historia del Descubrimiento*, lib. iv, cap. ii, p. 493) states: "Y después de haber allí reposado algunos días en las poblaciones de los indios, sobrevino un tan gran terremoto con temblor y tempestad de agua y relámpago y rayos y grandes truenos, que abriéndose la tierra por muchas partes, se hundieron más de quinientas casas; y tanto creció un río que allí había, que no podían pasar á buscar comida, á cuya causa padescieron gran necesidad de hambre."

35. *Histoire de Quito* (ii, p. 164): "Les secousses et le ravage qu'elle occasionna dans la ville ne furent pas considérables. Dans le voisinage de cette ville il lança une forte pluie de pierres; les effets furent plus sensibles á une grande distance, comme était celle á laquelle se trouvait Pizarro avec son armée." It is curious to note that, while Quito is the point that should have been more affected by an eruption of Pichincha than any other, owing to its proximity, it was farther to the northeast, nearer the volcano of Antisana, that the commotion was most violent.

36. *Historia general* (in Vedia, ii, p. 243).

37. This is so frequently stated by contemporaries and acquaintances of Zárate that no reference to sources seems necessary.

38. *Hist. del Descubrimiento*, p. 493.

39. *Carta al Rey*, p. 86.

40. *Relacion que escribió del nuevo Descubrimiento del famoso río grande que descubrió por muy gran ventura el Capitan Francisco de Orellana desde su nacimiento hasta salir á la mar* (in Medina, *Descubrimiento*, p. 4, et seq.).

41. Compare, in *Descubrimiento*, Toribio de Ortiguera, *Jornada del Río Marañón, con todo lo acaecido en ella y otras cosas notables* (p. 177); and a number of testimonies taken concerning the journey.

42. *La Guerra de Chupas* (*Documentos inéditos para la Historia de España*, vol. 76, cap. xvii, etc.; also cap. lxxxvi, pp. 288, 290).

43. Pedro Rodríguez de Aguayo, *Descripción de la Ciudad de Quito*. See note 52.

44. *Travels*, p. 264.

45. Humboldt, *Kosmos*, iv, p. 284: "Es hat sich unter den Eingeborenen des Hochlandes von Quito, zwischen Chambo und Lican, zwischen den Gebirgen von Condorasto und Cuvillan, allgemein die Sage erhalten, dass der Gipfel des hier zuletzt genannten Vulkans 14 Jahre vor dem Einfall von Huayna Capac, dem Sohne des Inca Tupac Yupanqui, nach Ausbrüchen, die ununterbrochen sieben bis acht Jahre dauerten, eingestürzt sei und das ganze Plateau, in welchem Neu-Rio-bamba liegt, mit Bimstein und vulkanischer Asche bedeckt habe. Der Vulkan, ursprünglich höher als der Chimborazo, wurde in der Inca oder Quichua-Sprache Capac, der König oder Fürst der Berge (Urcu), genannt, weil die Eingeborenen seinen Gipfel sich mehr über die untere Schneegrenze erheben sahen als bei irgend einem anderen Berge der Umge-

gend." This collapse of the Altar appears to be certain, and would have occurred, if the chronological indications are approximately reliable, about the beginning of the sixteenth or the end of the fifteenth century. It may be that Garcilasso de la Vega alludes to that event. He states in his *Comentarios* (1, fol. 240): "Sin esto hubo grades terremotos y temblores de tierra, que aunque el Peru es apassionado desta plaga, notaron que los temblores eran mayores que los ordinarios, y que cayan muchos cerros altos. De los Yndios de la costa supieron que la mar con sus crescientes y menguantes salia muchas vezes de sus terminos comunes. . . ." While Fernando de Montesinos is not a very reliable authority, I still quote here what he states (*Memorias antiguas historiales y politicas del Perú*, 1644, Madrid, 1882, cap. xxiii, p. 136) concerning volcanic eruptions in Ecuador at the time of the Inca Viracocha, or, according to his chronology and list of the Inca chiefs, in the early part of the fifteenth century: "Hubo en este tiempo en aquella provincia del Quito grandes temblores de tierra y reventar dos volcanes, que destruyeron muchos pueblos; el uno es el que está frontero de Panzaleo, cinco leguas de la ciudad de San Francisco de Quito; el otro es el que está á la vista de los montes de Oyumbicho." The first one must have been the Pichincha, the second the Antisana or the Cayambe.

46. See Whymper, *Travels*.

47. See Note 45.

48. See Note 45 concerning a possible eruption of Antisana in the early part of the fifteenth century. About that of 1620 compare Diego Rodriguez Docampo, *Descripcion y Relacion del Estado eclesiastico del Obispado de San Francisco de Quito*, 1650 (*Rel. geogr.*, iii, p. ciii). Humboldt, *Kosmos* (iv, p. 360): "Der Antisana hat einen Feuerausbruch in Jahre 1590 und einen anderen im Anfange des vorigen Jahrhunderts, wahrscheinlich 1728, gehabt." He quotes La Condamine, *Mesure des trois premiers degrés du Méridien* (1751, p. 56), as his authority for the statement. The name applied to the Antisana in the latter part of the sixteenth century was "Volcan de Pinta." On the map accompanying the report of the Conde de Lemus (*Descripcion de la Gobernacion de los Quixos*, 1608, *Rel. geográf.*, i, between pp. cxii and cxiii) the Antisana is represented as active and lettered "Bolcan de Pinta." In the text (p. ciii) we find: "Hay vn bolcan en los confines de la juridicion de Quito, que rebentó el año de Mil y quinientos y nouenta y nueue arrojando mucha piedra y fuego, tanto que el humo dura todavia, de sus efetos ó naturaleza no se á sabido cosa memorable, boxa la boca media legua y se cree que se puede llegar á las orillas tiene tan hondo el centro que no se alcanza á ver."

49. *Historia* (Vedia, i, p. 243): "Caminó hasto Quijos, que es al norte de Quito, y la postrera tierra que Guaynacapa señoreó. . . . Estando en aquel apresuró el paso hasta Cumaco, lugar puesto á las faldas de un volcan."

50. A glance at the map of Ecuador is sufficient to convince one of the truth of this assertion. This idea is not a new one. Humboldt already mentioned it as a probability (*Kosmos*, vol. iv, p. 345, ed. of

1858): "Wenn man die nördlichste Gruppe der Reihen-Vulkane von Südamerika in einem Blicke zusammenfasst, so gewinnt allerdings die, in Quito oft ausgesprochene und durch historische Nachrichten einigermaßen begründete Meinung von der Wanderung der vulkanischen Thätigkeit und Intensitäts-Zunahme von Norden nach Süden einen gewissen Grad der Wahrscheinlichkeit."

51. See my papers in the *American Anthropologist*, 1904-05.

52. Of late Ubina has been quite active. Its altitude is generally given at about 17,000 feet. At night and from a distance it presents the appearance of a burning candle. Raimondi (*El Perú*, I, p. 170) speaks of the crater of Ubina as "destrozado" and (III, p. 119) he mentions the "volcan apagado de Ubina." This shows that, about forty years ago, the mountain was at rest. Its lava is rubellitic, whereas that of Misti is augitic. I find no trace of an eruption of Ubina in early colonial times, but it must not be overlooked that Misti and Ubina were formerly frequently confounded, and eruptions of the latter may therefore have been ascribed to the volcano of Arequipa.

53. On that eruption, see Cobo, *Historia del Nuevo Mundo* (vol. I, cap. XVIII, and XIX, pp. 200-213). Of the Ubina he states: "El segundo y más cierto indicio es ver, que despues que reventó éste [the Omate] no echó humo por algunos años el volcan de los Ubina, estando antes de continuo humeando." Hence the Ubina was active at least as late as the latter part of the sixteenth century.

54. *Comentarios*, I, fol. 240.

55. *Historia del Perú*, lib. I, p. 27; cap. II, p. 32.

56. Earthquakes at Cuzco have been frequent and often violent. Compare *Noticias cronológicas del Cuzco*, Lima, 1902, and *Anales del Cuzco*, 1901. The former terminate in 1600, whereas the latter include the period from 1600 to 1750.

57. *Memorias antiguas*, pp. 78, 79, et seq.

58. Descriptions of the extent and effects of an earthquake, especially in early times, are usually exaggerated.

59. Diego Avila Brizeño, *Descripcion y Relacion de la Provincia de los Yauyos toda* (*Rel. geográficas*, I, p. 71).

60. *A Narrative of the Errors, False Gods and other Superstitions and Diabolical Rites in which the Indians of the Province of Huarochiri [etc.] Lived in Ancient Times* (Hakluyt Society Publ., 1873, Markham transl., p. 123). The date is 1608, and a manuscript copy is in the Lenox branch of the New York Public Library. The report is a fragment only. In addition to the fight between Pariacaca and Guallocho there is an allusion to earthquakes (p. 131): "They relate that, a long time ago, the sun disappeared and the world was dark for a space of five days; that the stones knocked against each other; and that the mortars, which they call Mutca, and the pestles called Marop, rose against their masters, who were also attacked by their sheep, both those fastened in their houses and those in the fields." On p. 133 a rising of the sea on the coast near Lima is mentioned.

61. Raimondi, *El Perú* (I, p. 159) states that the hacienda of Paria-

caca is the place where he experienced the most severe cold in all his travels in Peru. Brizeño, *Descripcion y Relacion* (p. 78): "Y del lago que nace hácia la parte del Oriente, sale un rio que va al de Xauxa y al Marañon, de la mar del Norte; y del lago que distila hácia la parte del Poniente, nace el rio de Lunaguana, que sale cerca de la villa de Cañete, á la mar del Sur, de la dicha Cordillera." The map accompanying the report depicts the Pariacaca with its summit shaped like a saddle and with a lagoon on each side.

62. See the preceding note.

63. Humboldt, *Vues des Cordillères*, etc., I, p. 287.

64. Generally called "Temple of Viracocha."

65. The word is Quichua: *quimsa* 'three,' *pata* 'steps.'

66. Squier (*Peru*, p. 402) calls the volcano "Haratche." We did not hear this name, as our stay was necessarily brief. Humboldt (*Kosmos*, IV, p. 321) mentions the volcano as extinct, as situated near Cacha, in lat. $14^{\circ} 8'$, long. $73^{\circ} 40'$, and gives the elevation of 11,300 Parisian feet (13,034 English feet). His data are taken from Pentland in Mrs Sommerville's *Physical Geography* (vol. I, p. 185). The altitude given by Pentland is certainly wrong, even the village of Sicuani being about 13,000 feet above the Pacific. Squier (*Peru*, p. 402) gives the following description: "Beyond the town, on the right bank of the river, and rising nearly to the center of the valley, is the broad and rather low, irregular volcanic cone of Haratche. It has thrown its masses of lava on all sides, partly filling up the hollow between it and the mountains, on one hand, and sending off two high dykes to the river, on the other." We were at Cacha on August 7, 1894, and early the following day were obliged to leave Sicuani precipitately on account of an attack on the place by the revolutionary party. On this occasion the sub-prefect was killed and the animals we had ridden the day before were taken away by the raiders.

67. I copy from my journal: "The slopes of the volcano are three-lobed, so that from the front, or west, the crater-form is not visible. From the south, between San Pedro and San Pablo, the shape of the summit is very distinct, and resembles that of the Omate, the concavity of the crater being well-marked and indented."

68. See "The Cross of Carabuco," *American Anthropologist*, 1904, vol. VI, p. 599.

69. *Primera Parte de la Crónica* (cap. xcv, p. 440): "Yendo yo el año de 1549 á los Charcas."

70. *Segunda Parte*, cap. V, p. 6.

71. Betanzos was already engaged in searching for folk-lore of the Cuzco Indians previous to 1542. In the latter year he was considered an expert in Quichua. See *Discurso sobre la Descendencia y Gobierno de los Ingas*, 1542 (*Una Antigüalla Peruana*, published by Espada in 1892, p. 5): "Dieron este cargo á personas de mucha curiosidad por interpretacion de Pedro Escalante indio ladino en lengua castellana, el qual servia á Vaca de Castro de interprete, con asistencia de Juan de Betanzos y Francisco de Villacastin vecinos desta ciudad del Cuzco, personas que

sabian muy bien la lengua general deste reino." It is therefore not unlikely that Betanzos heard of the tradition previous to 1540, or less than ten years after Pizarro landed in Peru. During that time it is not likely that contact with the whites could have made more than a very slight impression on Indian folk-lore.

72. *Suma y Narracion*, cap. II, p. 6.

73. What we took for a pond is described by Betanzos as a brook. Squier (*Peru*, p. 402) states: "At the upper end of this space, which has been widened by terracing up against the lava fields, and piling back the rough fragments on each other, is a copious spring, sending out a considerable stream. It has been carefully walled in with cut stones, and surrounded with terraces, over the edges of which it falls, in musical cataracts, into a large artificial pond or reservoir covering several acres, in which grow aquatic plants, and in which water-birds find convenient refuge." Our time was too short to permit us to investigate these artificial beauties, if they still exist.

74. Herrera (*Historia general, etc.*, 1729, vol. II, déc. V, p. 61) follows Cieza. Gregorio Garcia (*Origen de los Indios*, 1729, p. 33) copies Betanzos.

75. *Relacion de Antigüedades deste Reyno del Pirú (Tres Relaciones*, p. 237).

76. Cachapucara means, in Quicha, 'the strong or well-guarded site (fortified place) of Cacha.' This alludes to an ancient village higher up than the actual locality, which is in the valley and has little, if any, natural protection.

77. The eruption must have been anterior to the fifteenth century, since Inca tradition, as well as the tales concerning Viracocha, mention it as having occurred in very ancient times. The large buildings, now in ruins, having been constructed probably at the end of the fourteenth century, it is likely that Cachapucara was a settlement distinct from the Cacha of to-day.

78. Juan de Ulloa Mogollon, etc., *Relacion de la Provincia de los Collaguas para la descripcion de las Yndias que Su Magestad manda hacer (Rel. geogr.*, vol. II, p. 40).

79. Raimondi, *El Perú* (I, p. 169): "Cuya naturaleza volcánica pude reconocer mas tarde contemplándolos de cerca, . . ." (p. 237): "Desde Huayllura se divisa en la otra banda del rio el grande nevado de Solimana, el cual formaba en otra época con el Coropuna, el Sahuanqueya, el Chachani y el Misti, una elevada cadena volcánica que ha sido cortada por los rios de Ocoña, Mages y Chile."

80. The altitude of Koropuna has been determined from an excellent base by Don Mariano Bustamante y Barreda and found to be more than 23,000 feet. Compare my *Observaciones sobre medidas hipsométricas en las Cordilleras de Bolivia (Estudios de Orografía andina*, by Manuel Vicente Ballivian, La Paz, 1900, p. 75). Raimondi, *Perú*, I, pp. 169, 237.

81. *Segunda Parte de la Crónica del Perú*, p. 112.

82. *Perú*, I, p. 169, 237.

83. Cieza has 1549, which must be a misprint.

84. *Relacion del Obispado de Arequipa*, December 15, 1649 (*Rel. geogr.*, II, p. xviii). The occasional appearance of thin smoke above the crater of Misti has been mentioned to me, among others, by a most reliable authority, Prof. S. J. Bailey, in charge of the observatory at Arequipa. In the book entitled *Arequipa*, by Don Jorge Polar, 1891, mention is made (p. 47) of a work by Father Travada, *El suelo de Arequipa convertido en cielo*, in which reference is made to a manuscript of the Dominican Fray Alvaro Melendez, narrating an expedition to Misti on May 1, 1677; also (p. 50) an allusion to what must have been a slight eruption on March 28, 1677: "En la obra del P. Travada que hemos citado en otro lugar, dice, al referirse al manuscrito del P. Melendez: que el 28 de Marzo de 1677 se notó en Arequipa una densa nube de humo que coronaba toda la cumbre del volcán, que fue reconocida por la expedición que mandaron los Cabildos Eclesiástico y Real, la cual confirmó que era humo de azufre, y vió en el cráter muchas aberturas de donde salía, divisando por dos de ellas, las mayores, unas como llamas de fuego. En otro lugar refiere, que 'Otra expedición de los licenciados don Pedro Portugal y don Sebastian Hernani, curas de Andahuaylas y Cabaña, que vieron lo mismo, conjuraron aquel seno.'" Polar mentions a strong emission of smoke in November, 1874, and adds that a photographic view of the smoking mountain was then taken. Otherwise, early data concerning Misti are very contradictory, and there is manifestly a confusion between that peak, the Ubínas, and the Omate.

85. *Primera Parte de la Crónica*, (cap. LXXVI, p. 425): "Cerca de ella hay un volcan, que algunos temen no reviente y haga algun daño. En algunos tiempos hace en esta ciudad grandes temblores de tierra."

86. *Historia del Colegio de la Compañía de Jesus de Arequipa y reventazon del volcan de Omate* (MS. in the National Library at Lima, fol. 8).

87. *Ibid.* "Es fama que este volcan en tiempos pasados vomito fuego y tierra pomes y que vino á dar en agua. Ahora no se saue que eche de si cosa."

88. *Ibid.* (fol. 24): "Y avn se dijo que algunos hechizeros sacrificaron carneros al Volcan porque no los hundiesse y que hablaron con el demonio que les dezia las tempestades que auia de auer y como el volcan de Omate se auia querido concertar con el de arequipa para destruir a los españoles y como el de arequipa respondiese quel no podia venir en ello por ser Xpano y llamarse S. franc^o quel de Omate solo se esfuerza por salir con este yntento."

89. *Historia del Colegio* (MS., fol. 27) has a good description of Omate in the year 1600, after the great eruption: "Rematase en lo alto con vnas puntas por la parte de afuera de suerte que haze vna como forma de corona y en medio del se levanta otra punta menos alta que las de las orillas que tendra de vulto como vna mediana yglesia y aqui tiene la boca. Lllamanle los indies chiqui Omate denominado de vn puertecillo pequeño que tiene a la rraiz, llamanle tanvien Guayna putina que quiere decir volcan moço o nuevo. Porque a poco que echa fuego. Otros lo llaman Choque putina ques lo mismo que Volcan de mal aguero."

90. *Relacion de Antigüedades* (p. 278). The "Potina" is almost

certainly the "Huayna Putina," hence it may be an allusion to a pre-columbian eruption of the "Omate." The other one, "lower down than Guamanga," may be one of the extinct or slumbering volcanoes of the Solimana or Koropuna group. See note 70.

91. Torres Rubio, *Arte y Vocabulario de la Lengua Quichua* (fol. 155) has *çacaca*, 'huesos de muerto.' The word seems to be Aymará. Bertonio, *Vocabulario* (II, p. 304) has "*Sacaca*—Vna exalacion ignea propriamente, que aun de dia suele verse algunas vezes. *Sacaca hali*—Exalacion de fuego tambien, que de noche parece que corre de vna estrella a otra." The definition is rather indefinite, hence the allusion of Espada to comets is not to be altogether rejected.

92. *Relacion* (p. 279): "Al fin el dicho Pachacutyngayupangui haze la entrada y conquista de los Condesuyos con cien mill hombres, y entonces la uaca de Cañacuay se arde fuego temerario, y no los consiente passar la gente."

93. *Memorias antiguas historiales y politicas del Perú* (pp. 78, 79).

94. See Note 45.

95. At least not of volcanic origin. The mass of the Karka Jake or Huayna Potosí is of syenite. Silurian rocks form, so far as known, the crest or ridge of the Cordillera.

96. The altitudes of these peaks are yet imperfectly determined, and all that has been ascertained is limited to approximations. That one or the other of them, like Sajama for instance, is taller than the highest peak of the eastern Andes is likely.

97. The Isluga, Ollagua, Licancaur, and several more, are mentioned on maps of Chile as volcanoes, and some of them are at least intermittently active.

98. *Segunda Parte de la Crónica*, p. 6.

99. I have this definition from my friend Don Agustin Tovar, of Puno.

100. This great commotion is so frequently mentioned that no reference to authorities is required.

101. Especially on the east side of Lake Titicaca.

102. I have this on the authority of Mr John Minchin, a Scottish engineer of great reliability.

103. Mr Frederick Frank, for many years a resident of Kamata, a village at the foot of Tuanani, assured me, by letter, that to his knowledge and that of the oldest inhabitants the mountain had never shown any trace of volcanic activity. We saw it from the heights about Charassani as a considerable elevation crowned by a serrated ridge.

104. New Mexico and Arizona also have a number of ancient craters and lava-streams, but there is hardly any authentic recollection of volcanic disturbances.

105. *Historia de Chile desde su Descubrimiento hasta el año de 1575* (*Historiadores primitivos de Chile*, vol. II, cap. I, p. 1): "Hai asimesmo por la Cordillera muchos volcanes por toda ella que echan fuego de si de ordinario, y mas en el inuierno que en el verano."

106. *Historica Relacion del Reyno de Chile*, lib. I, cap. VI, p. 15.

107. *Historia geográfica, natural y civil del Reino de Chile* (*Hist. primitivos de Chile*, vol. xiv, p. 64). Peteroa, "este antiquo volcan" (p. 322).

108. *La Araucana* (ed. of 1735, parte primera, canto xv, fol. 79) :

"Y así la firme tierra removida,
Tiembra, i ai terremotos tan vsados,
Derribando en los Pueblos, i Montañas
Hombres, Ganados, Casas, i Cabañas."

(fol. 139.)

(fol. 173.)

"La Villarica, i el Volcan fogoso,"
"Pasó de Villarica el fértil Lilano,
Que tiene al Sur el gran Volcan vecino,
Fragua (segun afirman) de Vulcano,
Que regoldando fuego está contino."

109. *Descripcion de las Provincias de Santiago i Concepcion* (*Hist. primitivos de Chile*, vol. xi, p. 310).

110. *Historia geográfica, natural y civil de Chile*, lib. vi, p. 322.

111. So, for instance, P. Miguel de Olivarez, S. J., *Historia militar, civil y sagrada de Chile* (eighteenth century, p. 53; in vol. iv of *Historiadores primitivos*). Juan Ignazio Molina, S. J., *Saggio su la Storia Civile dell Chile* (1782, fol. 87). The latter has "Thegtheg" instead of "Tenten."

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NEW YORK CITY.

TANG'-GA, A PHILIPPINE PA-MA'-TO¹ GAME

By ALBERT ERNEST JENKS

Almost everywhere in the vacant roadsides and yards of Manila, and up and down the island of Luzon, little groups of native Filipinos may be seen playing games with coins. Bareheaded, usually barefooted, wearing only thin trousers and thinner shirts, with a cigarette between the teeth, in the hand, or tucked over the ear, these men and boys gamble by the hour, almost as industriously as the Manila "Chino" works.

The audience, like the players, is made up of unemployed people, and such onlookers usually sit on the ground by the hour squatting, animal-like, on their feet, resting their haunches on their heels. The groups of black-haired, unburnished-bronze-skinned people are passive and indolent, save for the stooping figures of the players which move slowly back and forth in the game.

In the various barrios and districts of the present composite city of Manila different games seem to hold sway. The game of pal'-ma is played more in the Walled City than elsewhere, because, apparently, the narrow streets with the abutting buildings give the vertical walls necessary for playing the game. Ermita favors the game of tang'-ga — why, I do not know.

Tang'-ga is a game of skill — a test of a simple coördination of the hand and eye — yet there is in it enough of chance, of the frown and smile of fortune, to make it a gambling game. At times, when money is scarce or time hangs heavily, friends play simply for pleasure.

Tang'-ga is played on the earth. A bare spot free of sticks, pebbles, and loose sand is chosen — preferably a surface of clay or

¹ *Pa-ma'-to* is the Tagalog name of the coin, stone, piece of pottery, or other thing tossed, flipped, pitched, or thrown in playing various games. Among other games it is employed in the Tagalog games of *ka-la-ho'-yo*, *ba-tong'la-pit'*, *pi-ko'*, and *tang'-ga*; it is also used in the Spanish game of *cara y cruz*, and in the game of *pal'-ma*, which is said to be of Chinese origin.

compact loam. A surface fifteen feet in diameter is all that is ever employed, and half this size is as large as necessary. The players number from two to five, though two or three play much more frequently than do four, and five complicate the game.

The essentials for a game of tang'-ga are a *tan-ge'-ro* (spelled "tanguero" in Tagalog), two *pa-ma'-tos* for each contestant, and the coins for the winning of which the game is played. The *tan-ge'-ro* is a small cylindrical piece of pottery, stone, or wood, about half an inch in height and diameter; it is placed on one of its flat faces on the ground, and serves as a pedestal or base on which the players stack their coins. A rough, yet serviceable, *tan-ge'-ro* may usually be picked up readily when a game is desired, as the *tan-ge'-ro* is often left where last used, and the game is played repeatedly on the same spot of smooth earth. But most tang'-ga players possess and carry a *tan-ge'-ro* as they do their two *pa-ma'-tos*.

Tang'-ga is most frequently played for copper coins—Straits Settlements' one cent, the Hong Kong one cent, the Spanish dos centimos and cinco centimos, the Philippine un cuarto and dos cuartos, the one cent of the United States: any and all of the dozen or more coppers current in the islands. But nickel and silver coins are also played for up to the value of the Mexican and Philippine pesos.¹

When the players assemble for the game, the *tan-ge'-ro* is placed on the ground, and the coins of the contestants are stacked up on top of it, the players standing near. One of them pitches one of his *pa-ma'-tos* on the ground, six or eight feet distant. Each contestant, including the owner of this first *pa-ma'-to*, tries to pitch another as close as possible to this first one; and the order of playing is determined by the relative nearness of each player's *pa-ma'-to* to the one first pitched.

When the order of precedence is thus fixed the players stand at a line six to twelve feet from the *tan-ge'-ro*, and each in turn pitches his two *pa-ma'-tos*.

Considerable skill may be displayed in pitching the *pa-ma'-to*. It

¹ This article was written before the U. S. Philippine Commission adopted the new Philippine currency. None of the above-mentioned coins is now legal currency in the Philippines.

should be held lying flat on the side of the middle finger, covering the first joint, and in nearly a horizontal position. The rim of the *pa-ma'-to* is held at opposite edges, between the bulbs of the thumb and first finger. The arm is extended at full length toward the *tang-ge'-ro*, where it is poised a second to steady the nerves and "take

aim"; the body is bent forward at the waist almost to a right angle with the legs, and it remains in this position until the *pa-ma'-to* is pitched. From the position of "aim" the straight arm, with hand fully extended, passes backward at the side of and behind the body, where it again briefly poises; it is then thrust forward full length toward the pile of coins, and the *pa-ma'-to* is freed by the least opening of the thumb and forefinger, and is sent on its flight.



Diagram 1

A player wins when one of the coins at stake has been knocked completely free from the *tang-ge'-ro* to the ground and lies closer to his *pa-ma'-to* than to the *tang-ge'-ro*, and is also nearer to his *pa-ma'-to*

than to anyone's else. Such a coin is picked up immediately by its winner, even though the player has pitched but one *pa-ma'-to*.

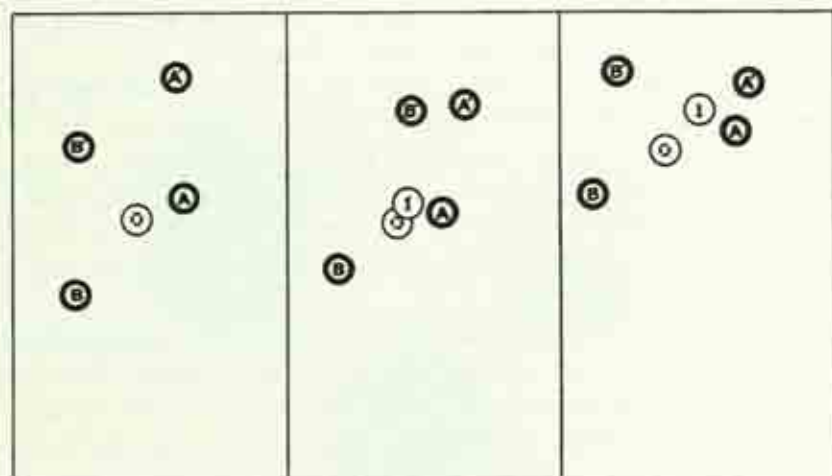
Diagram I presents a *tang'-ga* ground with the *gu'-het* (the Tagalog word for line — the "taw" line), and the coins stacked on top of the *tang-ge'-ro*; no plays have yet been made.

Diagram II represents, in addition, the positions of the four *pa-ma'-tos* of two players. These *pa-ma'-tos* were unsuccessfully pitched, since none of the stacked coins was knocked to the ground. When such a play has been made, each player picks up his *pa-ma'-tos*, and the order of the playing is redetermined, as one "game" has been played.

Diagram III represents an unsuccessful play of a new game. One coin, marked 1, has been struck from the top of the pile, but it does not lie flat on the ground.

A game terminates in one of two ways: First, as in diagram II, where each player has pitched his *pa-ma'-tos* without knocking any

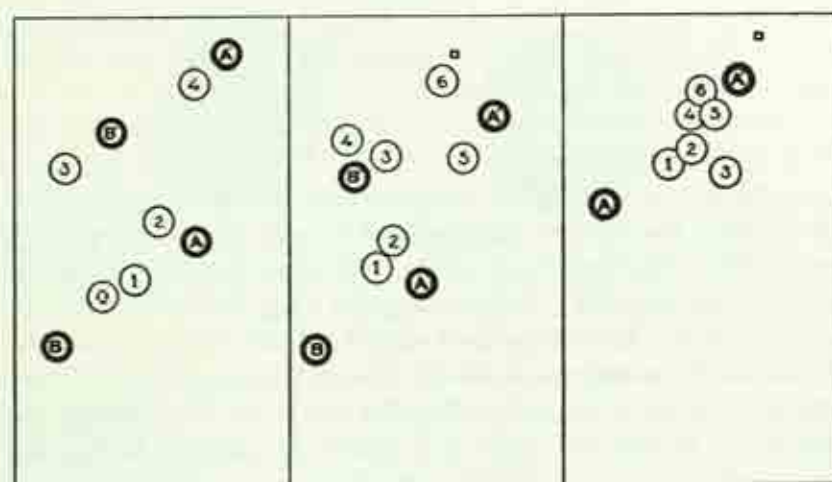
coin from the pile; and, second, after all the coins have been won. So diagram III represents only the result of an unsuccessful play of a game.



II

III

IV



V

VI

VII

Diagram IV represents a play by which pa-ma'-to A wins coin 1, while pa-ma'-tos A', B, B' do not win. If the owner of pa-ma'-tos B and B' were to play next, the owner of A and A' would leave his pa-ma'-tos on the ground during the play of his opponent, since if a

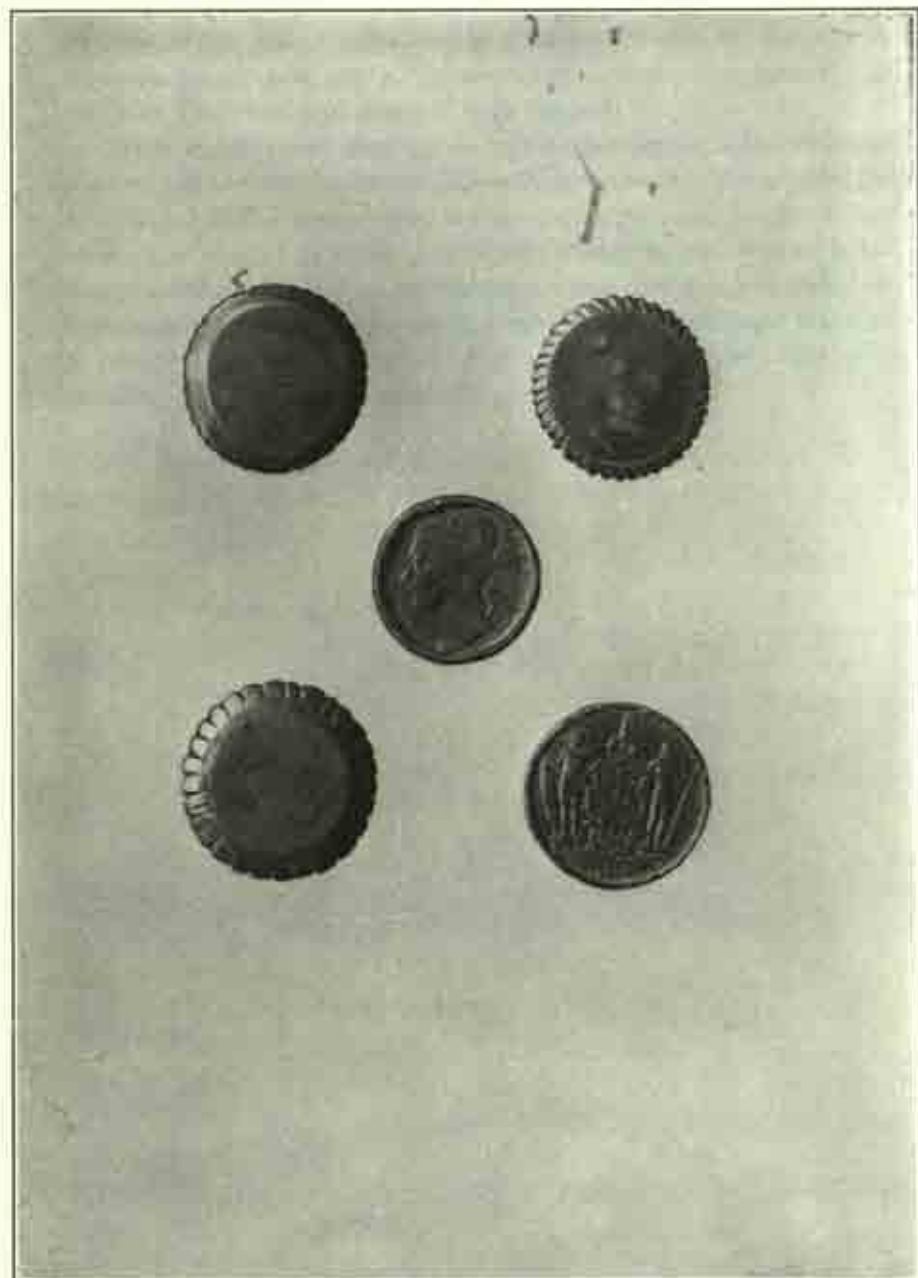
coin was knocked close to either A or A', as are coins 2 and 4, respectively, in diagram v, it would belong to the owner of A and A'.

In diagram v coin 3 belongs to B'; but coin 1 does not fall to either player, as it is nearer the tang-ge'-ro than to any pa-ma'-to. B does not win. A wins coin 2, and A' wins coin 4.

In diagram vi is shown a play such as might result had pa-ma'tos A, A', and B been pitched without winning, and had B' knocked the tang-ge'-ro completely from under the stack of coins, scattering them all on the ground. In this diagram A wins coins 1 and 2; A' wins coin 5; B' wins coins 3 and 4; B wins nothing; while coin 6 is not won, since it is nearer to the tang-ge'-ro than it is to any pa-ma'-to.

Diagram vii represents the result of the skill of a very successful player. Such plays are often seen at a tang'-ga game; the same result may be accomplished in two ways. The first pa-ma'-to is pitched near the stack of coins, and the second knocks the tang-ge'-ro a considerable distance from under the pile; or the first pa-ma'-to knocks out and carries away the tang-ge'-ro, while the second is pitched near the fallen coins. In such a game the opposing player does not even have a chance to play; the first one wins all the coins and the game is finished.

Pa-ma'tos are often especially prepared for playing tang'-ga, and such are held at more than face value. One of the set is smooth and flat so that it will glide along the ground with least resistance. It is called *pan-da'ta* in Tagalog, and is used to knock the tang-ge'-ro from under the pile of coins. The other pa-ma'to in the set is called *pa-ning-kat'*; by pounding and filing it is made concavo-convex (pl. x). It is the one used when the player wishes his pa-ma'to to win out by landing and remaining close to the coveted coin. When the pa-ning-kat' is properly released it shoots out from between the tips of the thumb and finger and strikes the earth on its rim, and may be depended on to remain within three or four inches of where it first strikes. When pitched by a skillful player the pa-ning-kat' seldom bounds or rolls at all; it strikes the earth, falls forward on its concave face, and stops. However, no effort is made to control the stopping place of the pan-da'ta. It is pitched with more force than is the pa-ning-kat', strikes the earth flat on its face a few inches



PA-MA'-TOS USED IN PLAYING PHILIPPINE COIN GAMES

The three coins with the filed notched edges are the concavo-convex *pa-ning-sat* used in playing *tang'-gis*. The two with the broad rims are used in playing *pal'-ma*. They are not previously prepared for use in the game, but become broadened by hattering against the vertical wall, against which they are tossed in the game and from which they rebound and roll away.

in front of the pile of coins, and is supposed to clip the tang-ge'ro from under the pile, carry it some inches or some feet distant, and come to rest when and where it may happen.

Such is Philippine tang'-ga — a game developing a low order of skill which seems valueless in any worthier pursuit. As a game for healthful Filipino amusement it answers its purpose, in that it has enough of chance to arouse the player's interest, and yet such interest manifests itself in so unexplosive a way that it is not trying or exhausting. The game seems in every way the legitimate child of a people of the tropics; its natural habitat is the shady side of a building blistering in the southern sun.

ELROY,

WISCONSIN.

THE SUN'S INFLUENCE ON THE FORM OF HOPI PUEBLOS¹

By J. WALTER FEWKES

In a valuable memoir on Pueblo architecture² Mr Victor Mindeleff first called attention to the arrangement of houses in Hopi pueblos in parallel rows separated by courts or plazas. He might have added that these rows of houses, as their parallelism infers, are oriented in a uniform direction without regard to the configuration of the mesa on which they are situated. The object of this article is to suggest the cause of this uniform arrangement and orientation, and to discuss its influence on clan localization. I shall also consider historic modifications of pueblos of this tribe produced by the accession of new clans as recounted in legends. My discussion will be limited to the villages on the East Mesa, called Walpi, Sichomovi, and Hano, restricting the consideration to the time they have stood on their present sites, or, roughly speaking, to the last three centuries. The thesis that I seek to defend is as follows: The arrangement and orientation of houses in Hopi pueblos are largely due to an attempt to secure sunny exposures for entrances and terraces and consequent protection from cold and wind. The facts discussed, like many others before the ethnogeographer, illustrate the influence of climatic or environmental conditions on human culture development.

It may lead to a better understanding of the discussion if I point out in the beginning that a modification has taken place in certain architectural features of Hopi houses since contact with Europeans. Little change has occurred in the forms of the buildings or the mode of construction of their walls—indeed the pueblo has profoundly influenced the Mexican house builder in that particular—but the relative position of entrances, especially those of the lower story, is

¹ Read before the Association of Geographers, New York, December, 1905.

² *Eighth Annual Report of the Bureau of Ethnology*, Washington, 1891.

radically different in old and new Hopi houses. An examination of ruins that antedate the arrival of Europeans shows a total absence of doorways in the walls of basal rooms, the entrances being universally hatchways or openings in the roof to which one mounted by a ladder. The chamber of the second story, however, was entered through the side wall from the roof of the lowest story. In both old and new houses lateral entrances are essential features of higher rooms, an arrangement that imparts to a four-storied pueblo, like Walpi, a terraced form. The roofs or terraces of a pueblo habitation are customarily used by the inhabitants in daily occupations almost as much as the rooms themselves, for exposure to the sun and protection from cold winds are especially desirable in these places.

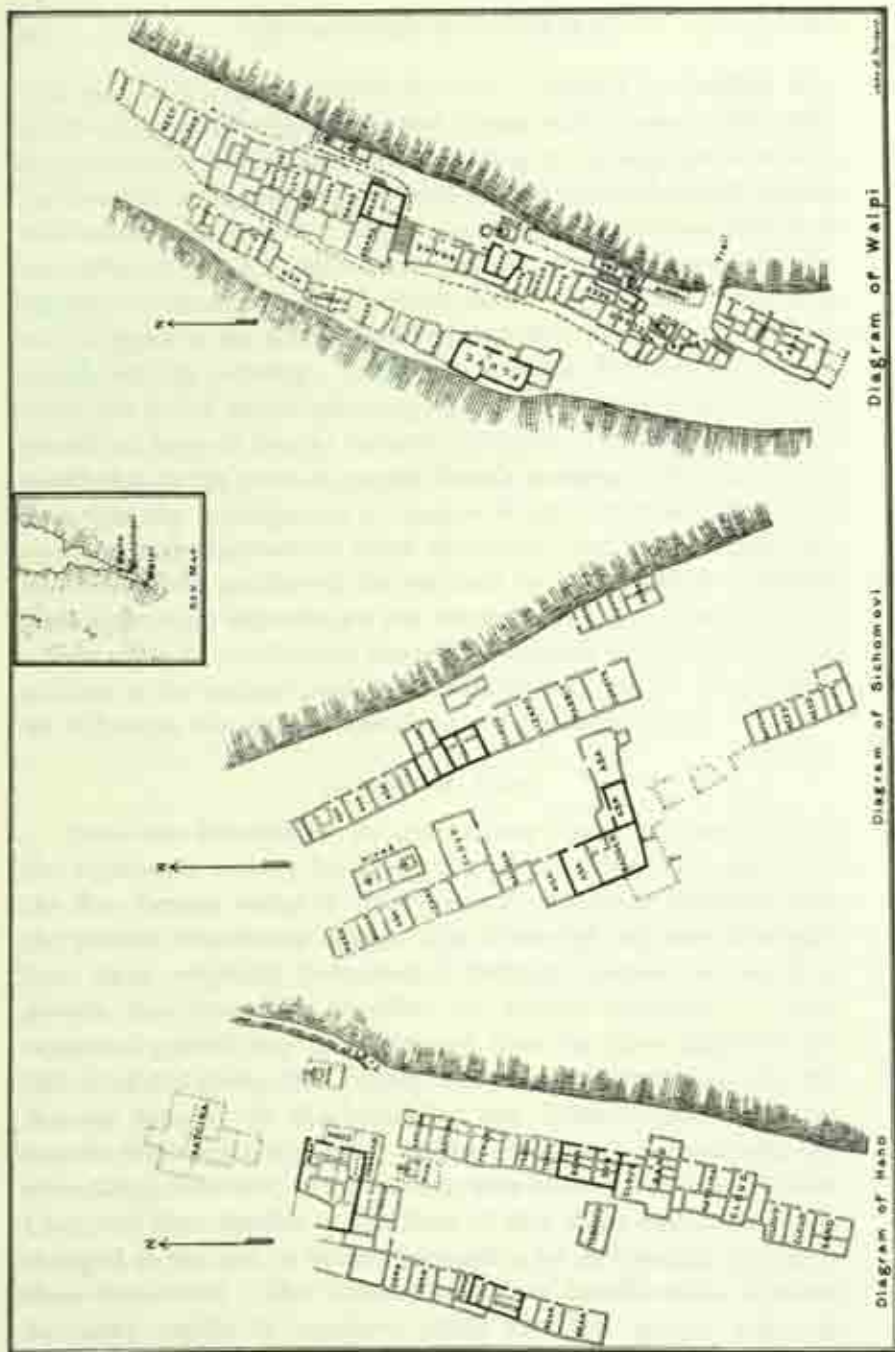
These roof terraces and lateral doorways, ancient and modern, as a rule are situated on the same side of the houses: their orientation is generally south or east or somewhere between these two directions. The axis of a row of such houses is naturally at right angles to this orientation, or approximately north by south. Let us analyze the probable cause that has led to the union of houses in rows and aim to discover the origin of their growth in this direction rather than in any other.

Starting with a single habitation housing one clan or family as a nucleus, suppose that this clan by marriage of eligible daughters is rapidly increasing and the maternal house is not ample to accommodate the increased family. In other words, the family has outgrown its original house, and it has become necessary to build new rooms to the old rather than to construct new dwellings. These rooms may be built on the sides, or, if space allows, on the roof of the mother's house. It is evident that there are limitations to the capacity of the roof, and additions to two of the four sides are undesirable for the reason that a room constructed on the east or south walls would exclude the sun with its warmth from the maternal house, while one on the opposite (west or north) sides would be equally undesirable, as the sun would be shut out, thus exposing the dwelling to the cold. The northwest and southeast walls are advantageous for additions to the parental abode, since they permit the new habitations to have heliotropic exposures without interfering

with that of buildings already standing. Similar restrictions also governed the addition of subsequent rooms made necessary by family increase, these increments always tending to enlarge the row in a northwest or southeast direction and to restrict growth at right angles to this axis. As time went on the topography of the mesa may have necessitated a new site and another house nucleus. Commonly this happened when new clans joined the pueblo. Each incoming family was assigned a site for its dwelling, but this site seldom adjoined houses already standing. After this addition had erected its first house the law of heliotropism regulating the position of terraces and growth of rows of houses became operative, eventually leading to parallelism in the rows of rooms already existing. It will thus be seen that the arrangement of houses in rows extending north and south, or approximately in these directions, was not fortuitous but was due to the position of the sun and to human effort in obtaining a heliotropic exposure for the maximum number of terraces. It is instructive to consider the bearing of legends and the localization of clans in the modern pueblos on this theory, and for this purpose we will begin our studies with the Tewa pueblo of Hano.

GROWTH OF HANO

Hano was founded on its present site about the beginning of the eighteenth century by Tewa clans from Chewadi, a pueblo in the Rio Grande valley of New Mexico. Legends gathered from the present inhabitants declare that Hano (pl. xi) was developed from three originally independent building centers or nuclei of growth that later grew together by natural extension. These centers of growth may be designated, from the clans that built and first inhabited them, the Tobacco-Corn, the Cloud-Sand, and the Kacina houses. In the beginning the Tobacco-Corn habitation housed three clans in as many rooms placed side by side with terraces facing eastward. These rooms were inhabited by the Tobacco, Corn, and Bear families. The form of this triple-room house was changed in the first or second generation by an unequal growth of these three clans. The Tobacco and Corn families were vigorous, increasing rapidly in numbers, while the Bear people remained stationary or declined. The present localization of rooms in this



part of Hano shows clearly the effect of this unequal growth. Commencing with their two rooms, the increase of the Corn and Tobacco families led first to the construction of additional upper stories, but growth in this direction soon ceased by reason of the limited surface, hence it became necessary to enlarge this roof area by lateral additions. The Bear house prevented growth on the northeast, and absence of sun made the northwest side undesirable; but two other sides were available — the east and the south — and the cluster was forced to grow in these directions. Let us consider the details of this growth.

The Tobacco-Corn group of rooms in Hano is the first on the right at the head of the trail entering that village. Two doorways are seen as one passes the kiva and turns toward this cluster. That to the right enters the room of the most famous potter of the Hopi, Nampeo, of the Corn clan. The adjacent chamber, that which opens to the left, belongs to Okun, of the Tobacco clan. Both of these rooms were constructed less than twenty years ago and lie in front or to the east of the original rooms of their respective clans. An examination of the rear walls of the new rooms confirms the statements of the occupants.

In the rear wall of Nampeo's room, about opposite the entrance, there is an opening through which, using a few steps, one may crawl to the floor of a dark chamber. In this opening, when I first visited Hano, there stood a notched log that served as a ladder for mounting to the chamber of the old clan house, now, as then, a dark store-room. Nampeo's present dwelling room is not an enlargement of the old room of her ancestors, but was built in front of it, the front wall of the latter being utilized as the rear of the new building. The floor of the dark store-room in the rear is the terrace of the old house.

Although the shape of the neighboring dwelling of Okun is somewhat different from that of Nampeo, it is of late construction and followed the same law of growth. This room was constructed around the southeastern corner of the old room of the same clan. Its front wall on the east side is continuous with that of Nampeo's house, and the rear on that side is the east wall of the ancestral room. On the south side, in the rear, there still remains a portion

of the original roof of the old house, now forming a raised part in which are hidden the effigies of the great serpent used in the March ceremonies. This new house owned by Okun does not occupy the entire south side of the old habitation of the Tobacco clan. Adjoining it on the west there is another room, owned by Hele, Okun's sister, and therefore of the same clan. Its length is so great that it extends far enough beyond the south wall of Okun's house to have an east wall in which is a heliotropic doorway. The north side wall of Hele's room is the original south wall of the old Tobacco house, the former roof of which is now the floor of a small back room. Communicating with this are other back rooms, in some of which hang ancient masks and other paraphernalia belonging to the Tobacco clan.

But Hele's room does not extend to the southwest corner of the original Tobacco-Corn house. Formerly, as late as 1891, this corner was in its original condition, but now a modern room occupies what was then an empty space separating this corner from the row of houses on the western side of the plaza. It is to be noticed that no additions have been made to this original building nucleus on the north and west sides.

We thus see that the original rooms that form the nucleus of the northern end of Hano have been modernized by additions, the position of which has been influenced by heliotropic tendencies. This cluster does not contain all the members of these clans in Hano. A member of the Corn clan owns a house on the south side of the plaza, although she lives at the foot of the mesa, and other members live elsewhere. There are special reasons, that need not now be considered, to account for these exceptions. As a rule the growth of the house of the Tobacco-Corn clan has been profoundly influenced by the law of heliotropism.

Another nucleus from which buildings in Hano have developed was the original habitation of the Cloud-Sand-Sun group. This was situated a few feet from the eastern edge of the mesa, at no great distance south of the southwest corner of the Tobacco-Corn building. The growth from this center was linear, forming a row of rooms with heliotropic exposure, the majority of the doorways being situated in the side walls. This is the row of houses one

passes in going through the pueblo and is the most thickly populated part of Hano. Not more than fifty years ago a woman of the Cloud clan built a house across what is now the Hano plaza, about fifty yards west of the house row above mentioned. Her house, which is still standing, became the nucleus of a new row of rooms that ultimately joined the southwest angle of the old Tobacco-Corn habitation. The Sun clan, formerly an important member of the group, gradually diminished in number, and in 1892 the last survivor died, leaving the old Sun house, situated about midway in the row above mentioned, to a member of the Bear clan. The ground room in the original house of this row, which in 1900 still preserved some of its ancient features, contains the masks of the Sumaikoli that have been described elsewhere.¹

The site of the original building of the Katsina clan in Hano is said to have been about due north of the Bear house of the Tobacco-Corn building, where walls may still be seen and where remains of a kiva are even now pointed out. Early in the history of Hano this site was abandoned, the Katsina clan moving to the other side of the Tobacco habitation, on a line with the Cloud-Sand house, a few feet back from the edge of the mesa. The row of buildings, all comparatively modern, that developed from this center ultimately joined the Sun house of the series above described.

From what has been shown of the traditional growth of Hano it is evident that the present village has been evolved from three original building nuclei and that the direction of growth from these centers has been largely influenced by the sun. Although the resultant rectangular form differs somewhat from that of some other Hopi pueblos, in which parallelism of house rows is now clearly marked, the cause of both is identical.

Other facts may be adduced to support the above conclusions regarding the position of the original building nuclei revealed by traditions. The receptacles of ancient masks² and ceremonial paraphernalia are now in these ancient houses and not in more

¹ *A Journal of American Ethnology and Archaeology*, 11, 33-38, 1892.

² It was reported to me that in old times these masks were kept in a shrine outside the pueblo, but that in one of the Navaho raids they became scattered, later to be carried to their present home on the mesa by Kalacai, of the Sun clan.

modern constructions. In an annual ceremony called Powamu there is a dramatic representation of the return of a sun god in which its personator visits certain houses and marks them with sacred meal.¹ The houses visited by this personage are the most ancient, the modern habitations being passed by without special notice. The explanation of this exclusion is evident. When this ceremony originated the only houses in Hano were the original ancient dwellings; these were then visited by the sun-god personator and the practice has been kept up without change ever since.

The growth of new houses in Hano has resulted in a rectangular pueblo, but in some instances villages of this form have been the outgrowth not from separate nuclei, but as an intentional means of protection.

GROWTH OF SICHOMOVI

The earliest or oldest houses of Sichomovi were built by the Asa, Badger, and Butterfly clans, the first of which once lived in Zuñi, but came originally from the Rio Grande. The Badger and Butterfly families are kindred of the Asa, and although their descendants now speak Hopi, they are considered as related to the Zuñi. It would appear that originally the Asa and Badger rooms were united in one building at the southwest corner of the plaza (pl. xi), and that this habitation was the nucleus of the row of rooms on the west side of this court. At first the growth of the Asa-Badger cluster closely resembled that of the Tobacco-Corn clans, as traced in the traditional history of Hano pueblo. The old house is now somewhat modified by modern buildings, but remnants of the ancient structure, still preserving the old form, are still visible. By a study of the traditional growth of Sichomovi it is found that the growth of this pueblo has been northwesterly from the old Badger house, and this house row now forms the western side of the plaza. The other row is parallel to it, forming the eastern side of the plaza.

It is difficult now to determine, either traditionally or from clan localization, the situation of the building nucleus in this eastern row, but the chief evidence assigns the greatest age to the home of the Tobacco clan. In its development from this center the growth has been due largely to the influence of the sun.

¹ Sky-god Personations in Hopi Worship, *Jour. Am. Folk-lore*, xv, 14-32.

There are two isolated blocks of houses in Sichomovi that merit mention, especially as one of them is visited by the personator of the sun in the yearly Powamu ceremony above mentioned. These consist of the house now inhabited by the chief Anawita and its neighboring rooms owned by the Tobacco clan. The entrances to these dwellings are heliotropic.

It is evident from the above facts that Sichomovi, like Hano, has developed its present form under the influence of the law of heliotropic exposure of the largest number of terraces and lateral doorways.

GROWTH OF WALPI

Walpi, the oldest and largest village on the East mesa, shows better than any other the operation of the law of heliotropism in determining the form of a Hopi pueblo. By reason of its age and complicated ground-plan, the latter mainly due to changes in house ownership, the arrangement of rooms in parallel rows and the localization of clans in them are somewhat obscured. Increase in certain families and decrease or extinction of others have so modified the form of the component parallel rows of houses that the present clan localization does not always represent what it was ancestrally; but notwithstanding these alterations it can readily be recognized that the same influences that have given form to Hano and Sichomovi have been strong factors in determining the direction of house-growth in Walpi.

Although complicated and more or less obscured by later growth, there are well-marked indications of three originally parallel rows of houses in the present ground-plan of Walpi (pl. XI), showing development from three building nuclei. The main and centrally placed of these three rows may be designated the Bear-Snake; that to the west, the Flute row; and to the east of the latter, from the "Snake rock" southward, the Asa row, formerly populous but now reduced to ruined walls. In addition to these three rows there are other clusters of rooms in Walpi, the most important of which is situated on an elevated site at the extreme southern end of the pueblo.

The Bear-Snake house row is not only the largest, but also the most complicated in its development. Little now remains of the Asa row save ruined walls that rise from the very edge of the mesa.

above a trail on the southeastern corner of a small court in which is situated the main kiva of Walpi.

The localization of clans in modern Walpi is found to conform with legends that make it possible to trace the growth of successive additions to that pueblo from the time the first houses were erected. This growth, which has been a very gradual one, has been influenced from the outset by the sun, or the same cause that has played such a prominent part in the growth of Hano and Sichomovi.

The first houses built on the site of modern Walpi were not far from the so-called "Snake rock," a remarkable stone pinnacle that rises from the rocky floor at the southern end of the open space where the Snake dance of that pueblo is biennially celebrated. The earliest clans appear to have erected two houses at about the same time—one, the Bear house, on the north side of what is now the court; the other the Snake house, just west of the Snake rock. Both of these original houses were still standing in 1900, and preserved fairly well their ancient features—a ground-floor room with hatchway in the roof, and a second story consisting of a room which opens on the terrace. These two original houses were built some distance apart, separated by the intervening space now covered by dwellings that form the western side of the dance court. Their present union has resulted chiefly from additions made necessary by increase of the Snake clan, the Bear clan having gradually diminished in numbers until it is now on the verge of extinction. The union of the Snake and Bear houses was not necessarily formed before the construction of other house nuclei in what is now Walpi, although it took place early in the history of this pueblo. In its early days Walpi was probably a single row of houses, possibly divided in its length, individual rooms having heliotropic terraces and entrances now looking eastward over the dance court.

The enlargement of the Bear-Snake house row had not proceeded far beyond these boundaries when the Flute people arrived and sought union with the existing inhabitants of Walpi. They were assigned a building site west of the houses of their hosts, who, legend says, were related to them. The Flute people had originally come to Tusayan from the south but before reaching Walpi settled Leñanabi where they were joined by the Horn clans that

were earlier united with the Snake families in their home in northern Arizona.

The first building of the Flute clan after their reception in the Bear-Snake pueblo was constructed on the western rim of the mesa and was separated by a narrow court from the rear wall of the Bear-Snake house group. The original Flute house is still standing, little changed in its general appearance by adjacent houses. In its rooms are still biennially celebrated the secret rites of the Flute priesthood. This house may be regarded as the building nucleus of the western row of Walpi houses, but it never reached any considerable length by reason of its undesirable site, being on the cold side of the Bear-Snake buildings that rapidly rose to such a height as to cut off the warm rays of the sun. At this epoch Walpi was composed of two rows of houses, each with several rooms, one, the Bear-Snake row, possibly with two parts not joined; the other, the Flute row, situated a short distance to the west. Roughly speaking, this was the ground-plan of the pueblo at the close of the first decade of the eighteenth century. Years earlier, how long no one knows, Walpi had received increments to its population from the pueblo of Sikyatki, and about the year 1700 still other clans came from Awatobi; but these arrivals did not essentially affect the outlines of the growing pueblo, as the habitations appear to have been added to the main row of buildings that rose higher and broadened especially at the northern extremity.

But the arrival, soon after, of the Patki (Cloud) people from the south, and their assimilation with the existing Hopi clans, radically changed the culture of Walpi and greatly affected the ground-plan of their village. They introduced a higher form of ritual and richer mythology and ceremonials. The early Patki were assigned a building site south of the rows of Bear, Snake, and Flute houses. The first habitation they constructed is still standing, in much the same form as when built, consisting of a ground story with hatchway forming the ceremonial chamber of the sun priests, an organization introduced into Walpi by this people.

The accompanying illustration (plate xi) represents the relative position of the ancient Patki or Cloud house, or nucleus, from which all other habitations of this clan originated. In it are still found many

sacred objects introduced into Walpi by this clan. The original room on the lower story, now entered by a hatchway, is still used in the secret rites of the sun priests in the sun prayerstick making, as elsewhere described.¹

We have now reached a period in the history of the growth of Walpi when it is extremely difficult to follow the sequence in the addition of new clans by the localization of their descendants. Many families sought the ever-growing pueblo for protection, and as fast as they came they were assigned sites for their houses. These habitations, in the enlargement of the village, were as a rule absorbed into the middle row of houses that grew broader and higher with each successive increment.

The clan house of the Asa people, which formed the third parallel row of Walpi houses, was erected at the head of the steep trail that enters the village from the southeast. The legends declare that this clan was given this site in order that they might defend the pueblo from enemies coming up the trail.²

The extension of the Asa row of houses was greatly limited by the configuration of the mesa, and as they increased in number the buildings covered all the available space. In the end, when their ever-increasing numbers demanded more room, they were obliged to seek other building sites. Impelled likewise by other causes, they moved away from Walpi to the Cañon de Chelly, where they lived in cliff-houses for many years. Here they lost their language and learned that of the Navaho. Later, however, they returned to the East Mesa and founded Sichomovi. The houses they inhabited while in Walpi are now ruins with the exception of a single room where the last woman of the Asa clan of Walpi still lived in 1900.

It was at about the same period that houses were erected on the rocky eminence situated south of the little court in which are found the two sacred rooms occupied during the Snake ceremonies. Katcina and Asa clans were the first to take up a building site on this elevation, and it was later covered with houses. These eventually were extended around the western side of the little plaza until the

¹ *American Anthropologist*, vi, 500, 1904.

² There was formerly a ladder by which one mounted to the edge of the mesa at this point, but it is now replaced by stone steps.

Patki and Katsina group were united. This growth was of short duration, for in a few years the Katsina clan began to decrease in numbers, their houses fell to decay, and the beams were torn down to be utilized for buildings in more desirable situations. The reason for this desertion is evident: exposure to cold and limitation in space for buildings with heliotropic exposure were in themselves sufficient causes to bring it about.

The distribution of religious paraphernalia in Walpi confirms the traditional account above given and points to the houses in which these objects are kept as the original building nuclei. This identification of the oldest houses is confirmed by the fact that in the annual personation of the Sun god in the Powamu ceremony this being visits these houses and no others, as is the case in Hano and Sichomovi.

It has been shown above that the rows of rooms forming the ground-plan of a typical Hopi pueblo are oriented in the same direction, and that this is due to a desire to obtain a maximum amount of heat through heliotropic exposure. An examination of their plans and a study of the legends clearly indicate that the same law is operative on the other mesas, and can also be extended to the whole culture area commonly known as the Pueblo.

There remains to be considered the cause that has led to the adoption, throughout the plateau region of the Southwest, of the Pueblo form of architecture—or the grouping of clans into composite villages with united rooms. This form, as I have repeatedly pointed out, is protective, and has been evolved from a preëxisting condition in which the sedentary people of the Southwest were more scattered, the habitations partaking more of the nature of isolated rancherias or clan houses. This stage characterized the population of the Gila valley before predatory tribes raided it and forced the people from their farms. It was likewise characteristic of the other great valleys of this region. The sedentary people were settled in the most advantageous positions for agriculture, evidently irrespective of their foes. The advent of enemies and a sense of insecurity led to consolidation of houses, pushing the people into inaccessible cañons and remote valleys. The clan houses joined

and became the pueblo. During this epoch was also developed the cliff-house, synchronous in origin with or later than the Pueblo form. Instead of antedating the latter type of village the cliff form was contemporary with it. It thus happens that the many similarities in cliff-house and Pueblo culture are not so much due to descent one from the other as to elaboration of both from a preëxisting culture which was formerly spread over the arid region of the Southwest and in the adjoining states of Mexico. The influences that led to the peculiar architectural features in the northern part of this area were the pressure of predatory tribes and the desire for sunny exposure.

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CERTAIN NOTCHED OR SCALLOPED STONE TABLETS OF THE MOUND-BUILDERS

By W. H. HOLMES

In a recent work¹ Mr Clarence B. Moore illustrates a number of discoidal and rectangular stone plates obtained from mounds in Alabama and elsewhere in the South, which he is able to identify as mortar plates, or palettes, intended for the grinding of pigments. It thus happens that another of the several groups of archeological objects heretofore placed in the problematical class is safely assigned to a definite use, although the exact manner and significance of the use remain still in a measure undetermined. The rectangular plates bear a more or less marked resemblance to the flattish rectangular tablets employed by Pueblo shamans in grinding pigments for sacred purposes; and several of the mound specimens, both rectangular and circular, as demonstrated by Mr Moore, bear unmistakable evidence of use in preparing colors, a sufficient amount of the pigments remaining on the surface to permit chemical analysis. The colors are for the greater part red and white, the former being hematite and the latter carbonite of lead.

Plates of the general type described by Mr Moore are obtained from ancient mounds in the Ohio valley and the Southern states. The rectangular specimens rarely exceed 10 inches in width by about 15 in length, and the discoidal variety ranges from 6 to 15 inches in diameter. The thickness does not exceed $1\frac{1}{2}$ inches. The central portion of one face is often slightly concave, a few are quite flat on both faces, while a smaller number are doubly convex in a slight degree. The margins are square or roundish in section, and in a few cases are slightly modified in profile, giving a molding-like effect. With rare exceptions the periphery of the discoidal plates is notched or scalloped. In many cases one or more engraved lines or grooves encircle the face of the plate near the margin, and not infrequently the notches are carried as shallow grooves

¹ *Journal of the Academy of Natural Sciences of Philadelphia*, XIII, 1905.

inward over the surface of the plate, terminating against the outer encircling band or connecting as loops forming what may be regarded as reversed scallops. The most striking features of these plates, occurring perhaps in one case in ten, are certain engraved designs occupying the reverse side of the plate, the grinding surface being regarded as the obverse. These subjects are undoubtedly of mythologic origin and include highly conventional representations of the human hand, the open eye, the rattlesnake, death's-head symbols, etc. The rectangular plates have notches or scallops at the ends only, and the surface, excepting in the Ohio specimens, has no embellishment other than simple engraved lines extending across the plate near the ends or continuing around the four sides just inside the border.

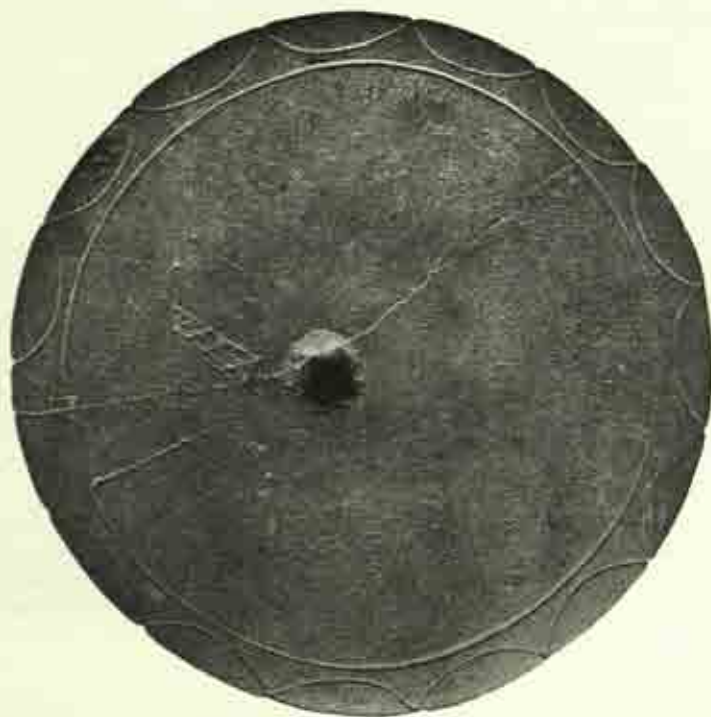
The Cincinnati tablet (pl. XIII, *d*), the best known of the rectangular plates, was found in a large mound, associated with human remains, in Cincinnati, Ohio, in 1841, and was described first in the *Cincinnati Gazette*, December 12, 1842. The question of its authenticity is fully discussed by Clark.¹ This as well as other rectangular specimens from the Ohio valley have sculptured figures on one face, the reverse exhibiting irregular depressions and grooves such as might result from prolonged sharpening of stone implements. The remarkable figures engraved on the surface of this tablet, first analyzed by Putnam and Willoughby,² are highly conventionalized animal forms, human or reptilian. A second, closely analogous tablet was found by Dr Hurst in a mound at Waverley, Pike county, Ohio, in 1878. Similar in general characteristics, although eccentric in outline and having engraved designs on both sides, is the Berlin tablet, found in a small mound near Berlin, Ohio.³ Of the discoidal plates the most northerly example is that obtained from a mound near Naples, Illinois.⁴ It is 12 1/2 inches in diameter and about 1 inch thick near the margin, but having a well-marked mortar depression on the obverse side is thinner toward the center. On the reverse face, which is slightly convex, is engraved a human

¹ *Prehistoric Remains*, 1878.

² *Proc. A. A. A. S.*, XLIV, 1896.

³ McLean, *The Mound-builders*, 1879.

⁴ Henderson in *Smithsonian Report*, 1882.



a. The obverse or grinding surface of the tablet, the mortise and minor markings not being original features of the plate.



b. The reverse or underside of the tablet, showing the engraved design.

THE MISSISSIPPI TABLET IN THE MUSEUM OF THE OHIO ARCHEOLOGICAL AND HISTORICAL SOCIETY, COLUMBUS

hand having a small mortar depression in the palm; this specimen is without notches or scallops. A superior example of discoidal plate of somewhat unique type, $11\frac{1}{2}$ inches in diameter and about 1 inch in thickness, was obtained recently from a mound near Arkansas Post, Arkansas.² It is exceptionally well finished and symmetrical. The slightly depressed area on one side is bordered by 36 neatly executed scallops, between which and the rounded periphery is a



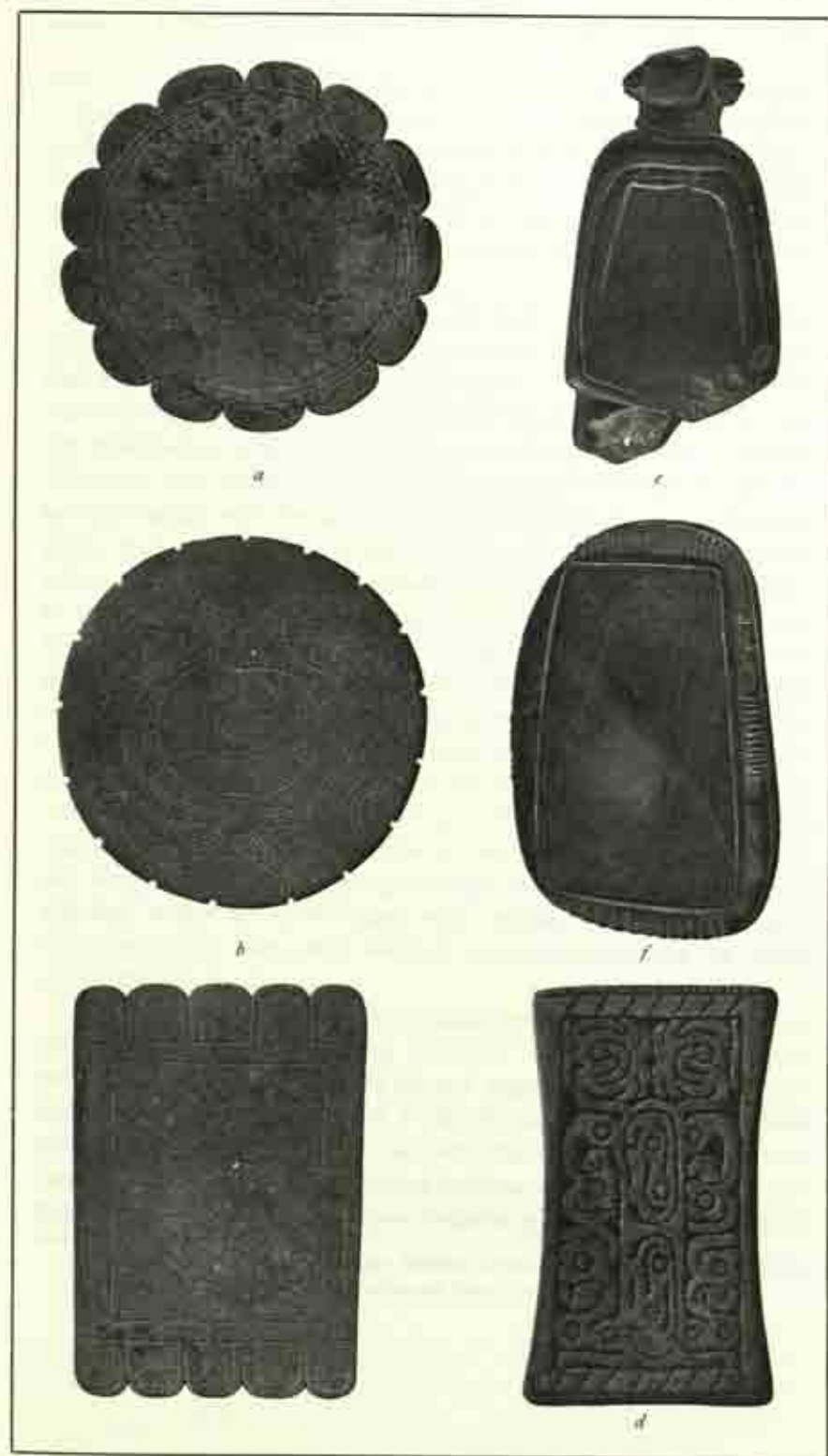
FIG. 8. — The feathered-serpent design in two colors showing the manner in which the serpents are interlocked. ($\frac{1}{2}$)

shallow incised line. The opposite side shows a formal design composed of two concentric depressed bands, probably intended to represent an open eye — a symbol common in the ancient art of the middle Mississippi valley and the Gulf states. The periphery is rounded in section and without notches or scallops. Even more remarkable are the disks with notched margins, on the face of which are engraved serpent symbols of unique design. One of these, now

² Stoddard in *American Antiquarian*, vol. XXVI, no. 3, 1904.

in the Museum of the Ohio State Archaeological and Historical Society at Columbus, known as the Mississippi tablet (pl. xii), was found in a mound near Lafayette bayou in Issaquena county, Mississippi, in 1870.¹ It is made of fine-grained brownish sandstone, is discoidal in form, $8\frac{1}{2}$ inches in diameter, about 1 inch thick, and has smooth, slightly convex surfaces. On one face is engraved in shallow lines the representation of two interlocked rattlesnakes with heads in reversed order, facing the center from opposite sides (fig. 8). These serpents are the conventional, mythical, feathered rattlesnakes of the South. The heads are conventionally drawn, the mouths being furnished with teeth and tusk-like fangs. The forked tongues are indicated by flowing lines issuing from the mouths. Plumes rise from the head, and the upper surface of the body is embellished with groups of feathers alternating with scaled areas. The under surface has elementary fretwork composed of alternating sections of scaled and plain surfaces, as is usual in drawings of the mythical Serpent god in the South and Southwest. One of the serpents has three rattles, the other four. The reverse side has a squarish depression near the center, probably not an original feature of the plate, and a neatly engraved border, consisting of 15 scalloped lines bordered within by an encircling band $\frac{5}{8}$ of an inch from the margin. The margin, or periphery, is squarish, and is divided into 15 sections by cross-lines or notches which connect with the scallops of the reverse face. Near the depression on this face is a small enclosed space filled in with crossed lines. This specimen came into the possession of Marshall Anderson, from whom it was acquired by the Ohio State Archaeological and Historical Society. Of the same general type is a thin, flat-faced, sandstone disk (pl. xiii, *b*) obtained from a mound at Moundville, Alabama, and now in the museum of the University of Alabama. It is $12\frac{1}{2}$ inches in diameter and has 17 marginal notches; one face is embellished with an incised design representing two horned rattlesnakes. The bodies, which encircle the plate, are knotted at opposite sides and the heads face outward. The inclosed space contains the representation of an open human hand bearing an eye

¹ McLean, *The Mound-builders*, 1879, p. 110.



NOTCHED AND SCALLOPED PIGMENT TABLETS

a, b, c, Alabama; d, Ohio; e, f, Arizona.

upon the open palm.¹ Of equal interest is a notched disk, $8\frac{3}{4}$ inches in diameter, found at Moundsville, Alabama, also described by Mr Moore and now in the Peabody Museum at Cambridge. The symbols engraved on one face include two human hands, each with an open eye in the palm, and three other unique figures which in their general style suggest the treatment of symbolic subjects by the ancient Mexicans.

It is observed that these plates are made of sandstone and kindred gritty materials, and this fact confirms Mr Moore's conclusion that they were used in grinding pigments. It is further observed that they are symmetrically shaped and neatly finished, and besides are embellished with various designs manifestly of symbolic import. That they were held in exceptional esteem by their owners is shown by their burial with the dead. These facts indicate clearly that the plates were not intended to serve merely an ordinary purpose, but rather that they filled some important sacred or ceremonial office, as in preparing colors for shamanistic use or religious ceremony. It may be fairly surmised that the pestles used in connection with these plates were also symbolic and yielded by their own attrition essential ingredients of the sacred pigments. It is a further possibility that drawings of sacred subjects were executed on the plates and, being ground off, entered also into the composition of the mixtures, imparting additional potency. These plates may well be compared with the pigment slabs of the Pueblo tribes and especially with some of the ancient plates (pl. XIII, *e, f*) described by Dr Fewkes² which are embellished with animal forms in relief and with concentric lines and notched margins analogous to those of the mound specimens.

The engraved designs on these plates naturally give rise to speculation, and it is not surprising that the very general presence of notched and scalloped margins should suggest the theory that the plates were sun symbols. But a critical examination of the various markings and figures leads to the conviction that all are representative, in a more or less conventional fashion, of animal originals and that all were probably employed because of their peculiar esoteric

¹ Moore in *Journal of the Academy Natural Sciences of Philadelphia*, XIII, 1905.

² *Twenty-second Report of the Bureau of American Ethnology*, 1904.

significance and relationship with the functions of the tablets. It is observed that the notches cut in the edges of the plates are in many instances carried inward over the plate in such a way as to suggest feathers as these are often formally treated in native art, and this leads to the surmise that the animal original might have been a duck—a symbol of wide distribution among the Indian tribes in the South; but recalling the occurrence of the feathered-serpent design engraved on the obverse of the Mississippi tablet a strong presumption is created that the original concept in the mind of the makers of these plates was, at least in some cases, the feathered serpent, a northern form of Quetzalcoatl, a chief deity of the middle American peoples.

With the ancient Mexicans and Central Americans the ceremonial grinding plate or metate was an object of unusual consideration and was elaborated to represent the forms of various animals. It is entirely in accord with aboriginal methods of thought that the metate plate, taking the place of the body of an animal god, should be regarded as possessing, through this association, the supernatural powers of the particular deity, or as being his actual body; and that the meal, the spices, the colors, the medicines, etc., ground upon it should be surcharged with supernatural potencies coming directly from and being part of the god himself. In view of these considerations the surmise seems warranted that the peculiar excavations found on the back of the Cincinnati tablet, already referred to, may have resulted from the removal of portions of the material of the plate itself to form part of sacred mixtures. A good illustration of the highly symbolic character of these grinding plates is furnished by a large Central American specimen weighing several hundred pounds, now preserved in the United States National Museum. The metate is supported by two sculptured human figures, male and female, joined beneath, whose heads appear at opposite ends of the utensil, the breasts of the woman falling within the rim of the plate. It may be fairly assumed that the symbolism embodies the idea of the perpetuity of life and continuity of flow of god-given sustenance, the materials ground on the plate partaking of the sacred life essence. It is possible that the graphic elements in our northern representatives of the sacred metate may have analogous symbolism.

A noteworthy feature of the engravings of the serpents and other figures on these mound tablets is the apparent maturity of the art, the intricate forms being skilfully disposed and drawn with a certain hand. These designs are not mere random products, but, like the copper ornaments, the earthenware decorations, and the shell engravings of the same region, are evidently the work of skilled artists practising a well-matured art which distinctly suggests the work of the semi-civilized nations of Mexico and Central America. These plates may be regarded as furnishing additional proof that the influence of the culture of middle America has been felt all along the northern shores of the Gulf of Mexico and has passed with diminished force still farther to the north.

Six examples of these tablets are brought together in pl. XIII. They represent three widely separated localities and differ considerably in appearance, although all are probably mortar plates. All bear more or less clearly defined traces of bird-serpent symbolism. Most of these have been referred to in the preceding paragraphs, but descriptions may be given in this connection. *a* is a discoidal plate of "metamorphic gneiss," $10\frac{1}{4}$ " in diameter and $3\frac{1}{8}$ " in thickness, obtained by Moore from a mound at Moundville, Alabama. Both faces seem to have served for grinding pigments. The obverse has three concentric marginal lines representing the body of the creature symbolized, and the periphery has thirteen feather scallops. The reverse is slightly concave, and shows traces of the light gray pigment ground upon it. *b* is a discoidal tablet of sandstone from the vicinity of Moundville, Alabama, and is described in some detail in a preceding paragraph. While the well drawn rattlesnakes are represented without recognizable feather elements, the periphery of the plate has seventeen notches marking off as many undeveloped feather scallops. *c* is a rectangular plate of "fine-grained gneiss," 14" in length by $9\frac{1}{2}$ " in width and $5\frac{5}{8}$ " in thickness. Both faces are flat, one showing traces of red and the other of cream-colored pigment. The obverse has two marginal engraved lines and the ends have five exceptionally deep feather scallops. *d* is the Cincinnati tablet, already sufficiently described. *e* is a small, oblong, bird-form tablet of blackish argillite from the Gila valley, Arizona, the length being 4" and the thickness $\frac{3}{4}$ ". The bird represented

is manifestly the eagle. The head is well suggested and the divided tail, partly broken away, is ornamented on the back with lines indicating feathers. The palette surface is slightly concave and partially surrounded by a raised band that may represent a serpent. The reverse of the body is evenly convex. *f* is a tablet of dark argillite, subrectangular in shape, obtained from the Gila valley, Arizona. It is $4\frac{3}{8}$ " in length and $\frac{1}{2}$ " in thickness. The upper surface, which is slightly convex save at the center, which is depressed, is surrounded by an incised line outside of which is the rounded margin ornamented with groups of notches, probably symbolizing the bird. A groove extends around the periphery, and the reverse, or back, is irregularly convex.

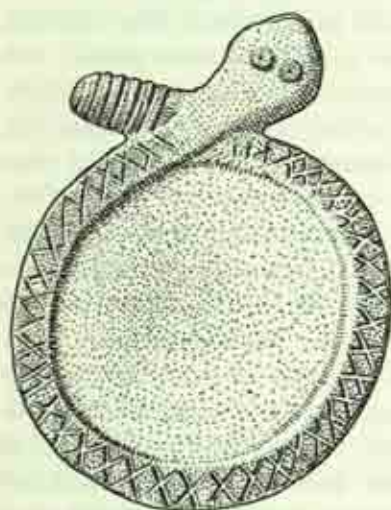


FIG. 9. — Pigment tablet of nephrite with rattlesnake border; Arizona. (Diameter $4\frac{1}{2}$ inches, thickness $\frac{1}{2}$ inch.)

To this list may be added the small, roundish tablet obtained from Cochise county, Arizona, shown in figure 9. It is made of an impure variety of nephrite, and is $4\frac{1}{2}$ " in diameter and $\frac{1}{2}$ " in thickness. The upper surface is slightly concave, and the margin is formed of the looped body of the rattlesnake with characteristic markings.

The small size of most of the tablets referred to indicates that they could hardly have been used for any purpose other than the grinding of pigments or medicines, and the peculiar symbols associated with them warrant the conclusion that they were intended for use, in part at least, in preparing substances sacred to the bird-serpent deity of the native pantheon.

BUREAU OF AMERICAN ETHNOLOGY,
WASHINGTON, D. C.

PRESERVATION OF AMERICAN ANTIQUITIES;
PROGRESS DURING THE LAST YEAR;
NEEDED LEGISLATION¹

By EDGAR L. HEWETT

Prior to 1904 the only act of our Government looking toward the preservation of our antiquities was the reservation and restoration, by act of Congress of March 2, 1889, of the Casa Grande ruin in Arizona. During the last fifteen months a definite policy of preservation has rapidly developed, so that at present it may be said that approximately three-fourths of all the remains of antiquity that are situated on lands owned or controlled by the United States are under custodianship more or less efficient, and that the despoliation of ruins for commercial purposes is in a fair way to be stamped out. Following are the various steps that have been taken:

1. All ruins that are situated on the national forest reserves have been placed under the care of forest rangers and all unauthorized excavation or collecting prohibited. Forest rangers are clothed with power to arrest offenders, accordingly all ruins so situated are adequately policed. This is a rapidly growing class, as forest reserves are being created constantly in the Southwest, where antiquities are most numerous. Already about fifty percent of the southwestern ruins are within the limits of forest reserves and in time from two-thirds to three-fourths of them will be included. The Forest Service now protects the following reserves upon which important archeological remains are situated:

In Colorado: Montezuma forest reserve.

In Utah: Aquarius and Sevier forest reserves.

In New Mexico: Pecos, Gila, Lincoln, and Jemez forest reserves.

The recently created Jemez forest reserve includes the vast arche-

¹ Abstract of paper read before the American Anthropological Association and the Archaeological Institute of America in joint meeting at Ithaca, New York, December 28, 1905.

ological district of the Jemez plateau, embracing the Pajarito Park and the Chama, Gallinas, and Jemez valleys.

In Arizona: Grand Canyon, San Francisco Mountain, Black Mesa, Prescott, Pinal Mountains, Mt Graham, Santa Catalina, Santa Rita, and Chiricahua forest reserves.

Many other areas, equally important archeologically, have been withdrawn from sale or settlement pending examination of their forest condition. Noteworthy among these are the Rio Verde district in Arizona, the Taos district in New Mexico, and the Mesa Verde district in Colorado.

2. The Office of Indian Affairs prohibits all unauthorized excavations on Indian reservations and the carrying away of remains of antiquity. Special custodians have been appointed for the ruins in Canyon de Chelly and Canyon del Muerto on the Navaho reservation in Arizona, the Mesa Verde on the Southern Ute reservation in Colorado, and the Zuñi reservation in New Mexico. Indian traders on reservations are prohibited from dealing in prehistoric wares, thus removing from the Indians and other persons the temptation to despoil ruins for the sake of the small profits to be derived therefrom. This corrects one of the most prevalent and disastrous of abuses. The most extensive archeological districts that come under the custodianship of the Indian Office are —

In Colorado: The Southern Ute reservation.

In New Mexico: The Zuñi and the Santa Clara reservations, and the various Pueblo grants.

In Arizona: The Navaho, Hopi, San Carlos, Walapai, Gila River, and Papago reservations.

Probably twenty-five percent of the southwestern ruins are so situated.

3. The General Land Office holds under withdrawal, awaiting Congressional action, the following important archeological districts:

In Colorado: The Mesa Verde district.

In New Mexico: The Chaco Canyon and Petrified Forest districts, and El Morro or Inscription Rock.

The ruins situated on unappropriated public lands are held to be subject to the authority of the Department of the Interior, and orders have been issued prohibiting unauthorized excavations.

In addition to these measures for the preservation of the ruins it has become necessary for the Departments to formulate some mode of procedure with reference to excavation privileges. In passing on the application of the Southwest Society of the Archaeological Institute of America for such privilege, the Office of Indian Affairs held—

" . . . It is not satisfied that the Department could legally grant permission to persons or organizations to enter reservations for the purpose of excavating for and carrying away objects of archeological value unless collecting for or under the supervision of the Government. . . .

"It is recommended that permission be granted the Southwest Society of the Archeological Institute of America to conduct archeological explorations and make excavations on Indian reservations in the southwest upon the condition that such work is to be done under the oversight of, and in coöperation with, the Bureau of American Ethnology."

The essentials of a plan prepared in order to meet the requirements of the Office of Indian Affairs in this case and to provide for effective coöperation and avoid duplication or conflict of work are as follows :

1. That this Society shall file with the Bureau of American Ethnology a brief but measurably definite plan of the explorations proposed on the Indian reservations, designating the person who is to have immediate charge of the field work.

2. That it shall furnish data for use in compiling the card catalogue of antiquities now in preparation by your Bureau [the Bureau of American Ethnology] and for properly mapping the sites of the explorations and excavations.

3. That it shall adopt a liberal policy of exchange, to the end that each participating institution may share in the benefits of the others.

4. (a) That thorough work shall be done on each site occupied ;
(b) that full notes shall be taken for a catalogue of American antiquities ;
and (c) that the results obtained by all expeditions shall be made known within a reasonable time through published reports.

This plan was adopted by both the Office of Indian Affairs and the Forest Service and was accepted as entirely satisfactory by the Southwest Society. The Departments concerned have consistently held that excavations may be conducted only for the advancement of the knowledge of archeology and not for commercial purposes. Collections may be made only for permanent preservation in public

museums, and permits will be issued only to qualified archeologists who are under the direction of reputable institutions or societies. Recognizing the necessity for expert advice as to the issuance of excavation permits, the Departments have adopted the plan of referring all applications for such permits to the Chief of the Bureau of American Ethnology for an opinion as to the standing of the institution desiring the privilege and the competence of the archeologist who is to be in charge of the work. The spirit in which the Bureau has responded to this duty imposed on it by the Departments is reflected in a letter from its Chief, Mr William H. Holmes, in relation to the application of the Southwest Society of the Archaeological Institute of America, from which I quote :

" In the way of report on these inquiries I beg to state that the Archaeological Institute of America is to be classed among the most enlightened bodies of students of human history and antiquity in the country, and its component societies, organized in various cities, include in their membership the leading archeologists of the country. It may be safely assumed that the Southwest Society, which is the largest of the allied organizations, has among its members persons fully qualified to undertake the work proposed, and that it will be wise enough to entrust the work to such, and only such, as can be implicitly relied upon to conduct the excavations in a scientific manner, to properly record observations, and to care for the collections obtained.

" This Bureau appreciates fully the attitude of the Indian Office in its endeavor to preserve the national antiquities for the nation, and to prevent unauthorized and unscientific explorations ; but it takes the view that whatever materials are intelligently collected and placed in reasonably protected public museums, wherever situated, that provide systematic and permanent custodianship, are preserved for all the people. The field of American archeology is a vast one, and the larger the number of properly qualified institutions that engage in the work, the better for history and science. The system of exchanges of specimens and replicas of important objects arranged between the National Museum and other museums of the country, and the well-established practice of collaboration on the part of curators and students generally, place the collections of one institution practically at the service of all."

On the whole it would appear that the system as developed secures practically what our students have been asking for ; that

the preservation of American antiquities is in a fair way to be accomplished, and that in the matter of excavation privileges substantial justice is being done to all. It is manifestly impossible to concentrate the entire authority in this matter in any one Department. The purposes for which the lands of the United States are administered are so diverse that no Department could safely undertake to grant privileges of any sort upon lands under the jurisdiction of another Department. Accordingly, if archeological work is proposed on forest reserves the application for permission must be to the Secretary of Agriculture; if on a military reservation, to the Secretary of War; and if on an Indian reservation or on unappropriated public lands, to the Secretary of the Interior. Any other system would lead to great confusion and conflict of interests.

It remains to be considered what is needed in the way of national legislation on this subject. I beg leave to submit for your consideration the following memorandum of provisions which seem to be needed. They are drawn from measures previously brought forward, with such modifications as have become necessary through the rise of new conditions, and the addition of some new matter, designed to meet conditions with which we were previously unacquainted. Every effort has been made to preserve the exact spirit of the measure agreed upon last year by these two organizations (the Archaeological Institute of America and the American Anthropological Association) and at the same time meet the wishes of the various Departments of the Government that will be charged with the administration of the law:

1. That any person who shall appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of Government having jurisdiction over the lands on which said antiquities are situated should, upon conviction, be fined in a sum not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or should suffer both fine and imprisonment in the discretion of the court.

2. That the President of the United States should be authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific

interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land, the limits of which in all cases should be confined to the smallest area compatible with the proper care and management of the objects to be protected: *Provided*, That when such objects are situated upon a tract covered by a bona fide unperfected claim or held in private ownership, that tract, or so much thereof as may be necessary for the proper care and management of the object may be relinquished to the Government, and the Secretary of the Interior should be authorized to accept the relinquishment of such tracts in behalf of the Government of the United States.

3. That permits for the examination of ruins, the excavation of archaeological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions, should be granted by the Secretaries of the Interior, Agriculture, and War, to institutions which they may deem properly qualified to conduct such examination, excavation; or gathering, subject to such rules and regulations as they may prescribe: *Provided*, That the examinations, excavations, and gatherings are undertaken for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects, and that the gatherings shall be made for permanent preservation in public museums.

4. That the Secretaries of the Departments aforesaid should make and publish from time to time uniform rules and regulations for the purpose of carrying out the provisions of this law.

In a separate resolution I desire to ask these two organizations to consider the matter of the proposed Mesa Verde National Park in Colorado, provided for in a bill introduced by Representative H. M. Hogg, now pending before the national Congress. This is one of the most important pieces of legislation looking toward the preservation of American antiquities that has ever been proposed, and it seems most fitting that these organizations should give it their enthusiastic support.

[The recommendations made by Mr Hewett in the above paper were subsequently considered at the joint business meeting of the Archaeological Institute of America and the American Anthropological Association, were unanimously accepted, and subsequently embodied in a bill which has been introduced by the Honorable John F. Lacey of Iowa as H. R. 11016. A resolution was also passed urging the creation of the Mesa Verde National Park in Colorado.—*Editor*.]

WASHINGTON, D. C.,

December, 1905.

HOUSES AND GARDENS OF THE NEW ENGLAND INDIANS

By CHARLES C. WILLOUGHBY

The habitations of the New England Indians were of three general types — the round house, the long house, and the conical house. The first two forms occurred throughout this area. The conical house seems to have been more common in Maine than in other sections of New England, where if used at all it was probably employed as a temporary shelter only.

THE ROUND HOUSE

The outline of the round house (fig. 10, *c, d'*) closely approached that of a hemisphere. The ground-plan was circular,¹ with an approximate diameter of from ten to sixteen feet.² The probable height of these lodges over the central fireplace was from six to eight feet. They were occupied by one or two families. According to Williams "two families will live comfortably and lovingly in a little round house of some fourteen or sixteen foot over."

The framework consisted of small poles set in the ground two or three feet apart, enclosing the circular floor space. Several arches were made of "halfe circles of timber,"³ each formed by bending and lashing two opposite poles together. The remaining poles were bent over and joined to these arches, and horizontal poles were added, the whole being firmly bound together. Morton's description is as follows :

"They gather Poles in the woodes and put the great end of them in the ground, placing them in forme of a circle or circumference and, bendinge the topps of them in form of an Arch they bind them together

¹ Verrazano in Hakluyt, *Divers Voyages*, Hakluyt Society's repr., p. 68. Champlain, *Voyages* (Prince Society), vol. II, pp. 83, 124.

² Verrazano, *ibid.* Roger Williams, *Key into the Language of America*, Rhode Island Hist. Soc. Coll., vol. I, p. 48.

³ Verrazano, *ibid.*

with the Barke of Walnut trees which is wondrous tuffe so that they make the same round on the Topp."¹

The men usually prepared the poles and made the framework, over which the women fastened the mats and other coverings.

There were usually two entrances to wigwams of this type, one at the north, the other at the south. These were about three feet in height, "and according as the wind sets, they close up one door with bark and hang a deer's skin or the like before the other."²

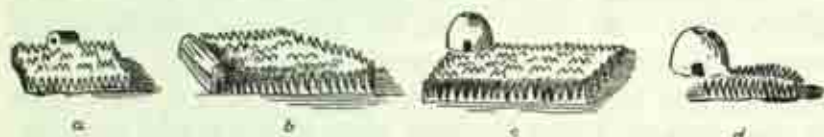


FIG. 10. — Habitations and gardens, coast of Massachusetts. *a*, House and garden at Chatham. *b*, *c*, At Nauset Harbor. *d*, At Gloucester. (After Champlain, 1605-06.)

An opening in the roof about eighteen inches square allowed the smoke to escape. In windy weather, if the smoke became troublesome, this aperture was screened with a small mat placed upon the top of the lodge and arranged with a cord so as to be turned to the windward side.³ That houses of this type were also common in central and eastern Maine seems evident from the remark of John Gyles, who was captured at Pemaquid in 1689, and lived with the Indians for seven or eight years in the region of the Penobscot and St John rivers. Describing the houses of the beaver, he says "they are round in the figure of an Indian wigwam."⁴

THE LONG HOUSE

In the second group are included those lodges having an oblong, rectangular ground-plan (fig. 11, *a*, *b*) and an outline resembling that of a semi-cylinder. The medium and smaller sizes were generally used as communal dwellings. The larger ones, called *gunnekamuck*, seem to have been built principally for ceremonial purposes and were "sometimes a hundred, sometimes two

¹ Morton, *New English Canaan* (Prince Society), p. 134.

² John Josselyn, *Two Voyages to New England*, Venizie repr., p. 99.

³ Gookin, *Historical Collections*, Mass. Hist. Coll., 1st s., repr. 1859, vol. 1, p. 150.

⁴ John Gyles' Captivity, in S. G. Drake's *Tragedies of the Wilderness*, p. 94.

hundred feet long,"¹ and thirty feet broad.² Usually, however, the council or ceremonial house was much smaller.

The framework was made by setting poles in two parallel rows enclosing the floor space. Opposite poles were bent over and joined to each other in pairs, forming a series of arches of equal height, which were joined together by horizontal poles placed at



FIG. 11. — Habitations, gardens, and fort at Saco river, Maine. *a, c*, "Cabins in the open fields near which they cultivate the land and plant Indian corn." *b*, "Another place where they have their dwellings all together after they have planted their corn." *d*, "Place where they have their fortress." (After Champlain, 1605.)

intervals, forming an arbor-like framework. The poles for the ends of the framework were set either in a straight line and joined to the end arches in a perpendicular position, giving the form to the finished hut shown in figures 10, *a, b*, and 11, *a, b*, or were arranged in a segment of a circle bent over and joined to the main framework, thereby giving a more rounded appearance to the ends of the huts. The dwelling houses of this type had usually "two, three or four fires, at a distance one from another for the better accommodation of the people belonging to it."³ Houses with two fires were called *ne's quttow*,⁴ those with three fires *shwishcuttow*. These wigwams had, according to their size, two or more entrances, which were covered with a deer-skin or with a mat which could be rolled up. According to Wood:⁵ "Their houses are smaller in the Summer when their families are dispersed, by reason of heate and occasions. In Winter they make some fiftie or three score foote long, fortie or fiftie men being inmates under one roof." There is evidence, however, that long houses were sometimes occupied as summer dwellings, and while the winter wigwams were more commonly of the

¹ Williams, *op. cit.*, p. 146.

² Gookin, *op. cit.*

³ *Ibid.*

⁴ Williams, *op. cit.*, p. 47.

⁵ Wood, *New England's Prospect*, Boynton repr., p. 99.

long type, especially in the southern half of New England, smaller cabins were also used for winter habitations.

Verrazano, describing the New England habitations in 1524, writes:

"We sawe their houses made in circular or rounde fourm 10 or 12 foote in compasse. . . . They moove the foresaide houses from one place to another according to the commoditie of the place and season, wherein they will make their aboade and only taking of the cover, they have other houses builded incontinent. The father and whole familie dwell together in one house in great number: in some of them we saw 25 or 30 persons."¹

The long house was used as a dwelling or for council or ceremonial purposes throughout New England. It seems to have been used for the former purpose as far east as the Saco river, Maine, and probably in other sections of the state. The great wigwam was employed for council purposes on the Kennebec river. The one on the Penobscot was twenty feet wide by forty feet long,² and Gyles saw one thirty or forty feet in length on the St John river in New Brunswick.

THE CONICAL HOUSE

The conical wigwam (fig. 11, *b*, *c*) seems not to have been in very general use; it is the traditional lodge of the modern Penobscot Indians, who have no knowledge of other aboriginal forms. The framework was made of straight poles with their lower ends set into the ground enclosing the circular floor space, their upper ends being brought together and fastened. This frame resembled that of the skin tipi of the Plains tribes, and was covered with bark mats or pieces of bark which were sometimes held in place by a second series of poles placed over them. Father Rasles, in a letter written at the Indian village of Nanrantsouak (Norridgewock) on the Kennebec in 1723, describes the type as follows:

"Their cabins are easily built. They plant poles in the earth, which they join at the top, and then cover them with large pieces of bark. The fire they make in the middle of the cabin and all around it . . . they sit during the day and sleep at night."³

¹ Verrazano, *op. cit.*, p. 68.

² Maine Hist. Soc. Coll., 1876, vol. VII, p. 14.

³ Kip, *Early Jesuit Missions in North America*, p. 24.

The cabins thus described were not temporary shelters, but formed a permanent village which was surrounded by palisades.

Both the round and the conical wigwams stand side by side in the modern camps of the Cree and Ojibwa, and it is not improbable that they were thus used over a considerable portion of Maine.

OTHER HOUSES

Mourt in his *Relation*¹ thus describes the cabin of a chief in eastern Massachusetts :

"A mile from hence, Nanepashemet their King in his lifetime had lived, His house was not like others, but a scaffold was largely built, with pools and plancks, some six foote from the ground, and the house upon that, being situated on the top of a hill."

Dwellings upon raised platforms were unusual. According to Williams it was the custom to erect "little watch-houses in the middle of their fields in which they or their biggest children lodge, and early in the morning prevent the birds" from injuring the corn. He gives no description of these structures. They were, however, probably like the watch-houses of the southern Algonquians built for the same purpose. A picture of one of these in the village of Secota, by John White,² shows a raised platform on which is built a small cabin or shelter open at one side. This is referred to in the text as follows :

"In their corn fields they built, as it were, a scaffold on which they set a cottage . . . where they place one to watch, for there are such a number of fowls and beasts."

This dwelling of Nanepashemet's seems to have been patterned after a watch-house. Such a cabin would be more comfortable in summer than the ordinary form, being cooler and more free from fleas and other vermin.

Little hunting houses of bark and rushes, "not comparable to their dwelling houses,"³ were built by hunters for temporary occupancy while on their fall hunts.

In common with most American tribes the New England In-

¹ Mourt's *Relation*, *Journal of the Pilgrims at Plymouth*, Cheever's repr., p. 90.

² Harriot, *Brief and True Report of Virginia*, pl. xx.

³ Williams, *op. cit.*, p. 141.

dians erected little wigwams, called *wetuumémese*, in which the women lived alone during catamenia, "which custome in all parts of the country they strictly observe."¹

The men's sweat-lodge was a

. . . "little cell or cave, six or eight foot over, round, made on the side of a hill (commonly by some Rivulet or Brooke), into this frequently the Men enter, after they have exceedingly heated it with a store of wood, laid upon a heape of stones in the middle. When they have taken out the fire, the stones keep still a great heate: Ten, twelve, twenty more or lesse, enter at once stark naked . . . here doe they sit round these hot stones an hour or more taking tobacco, discoursing and sweating together, . . . when they come fourth . . . I have seen them runne (Summer and Winter) into the brookes to cool them, without the least hurt."²

Another form of sweat-lodge, sometimes used by the shamans for their powwows, consisted of a small hut covered with skins or mats. Within was a pile of hot stones over which water was poured.³

LODGE COVERINGS

"The best sort of their houses are covered very neatly, tight, and warm, with the barks of trees, slipped from their bodies at such seasons when the sap is up; and made into great flakes with pressure of weighty timbers when they are green; and so becoming dry they will retain a form suitable for the use they prepare them for."⁴

Birch, chestnut,⁵ and oak⁶ bark are recorded as being used for lodge covering, and it is probable that the bark of other large trees such as elm, pine, and hemlock, were also used. The bark was fastened to the framework so that the upper pieces overlapped the lower. Poles were sometimes laid over the bark to aid in keeping it in place. Portable mats made of flags were extensively used for lodge coverings. The flag leaves were "finely sowed together with needles made of the splinter bones [fibula] of a Cranes legge, with thread made of their Indian hempe."⁷ Lodges thus covered

¹ Ibid., p. 47.

² Ibid., p. 158.

³ Gyles, op. cit., p. 91.

⁴ Gookin, op. cit., p. 149.

⁵ Williams, op. cit., p. 48.

⁶ Champlain, op. cit., p. 67.

⁷ Morton, op. cit., p. 135.

"deny entrance to any drop of raine though it come both fierce and long. Neither can the piercing North winde find a crannie through which he can conveigh his cooling breath. They be warmer than our English houses."¹ Gookin says that mat-covered lodges were "indifferent tight and warm but not so good as those covered with bark."

The Ojibwa, Winnebago, and other tribes still use this style of matting. The mats are three or four feet wide and eight or ten feet in length. The leaves are strung together on cords of bast or Indian hemp in such a manner that each alternate leaf lies upon the opposite side so as to cover the junction of the two opposite leaves. These cords are placed at intervals of a few inches and extend the length of the mat, the ends of which are furnished with wooden strips and with cords for tying the mats to the lodge frame. Fastening strings are also placed along the sides. These mats are light, portable, and fairly durable.

Another style of mat for lodge coverings, probably not uncommon in certain sections of New England, and still used by the Micmac, Cree, and Ojibwa, is made of pieces of the outer bark of the white birch sewed together. The pieces forming the mat are usually three or four feet in length (the width of the mat) and of varying width. The pieces are joined by overlapping their longer edges and sewing with split spruce roots. Each end of the mat is finished by placing two narrow and thin strips of wood, one at each side, so as to enclose the edge of the bark between them. These are sewed and bound together with split roots. An additional piece of bark, a foot or more long and four or five inches wide, is caught between these binding strips by one of its longest edges at each end of the mat as a reinforcement. The mat is furnished with tying cords, and when formed into a roll occupies a very small space, being light and portable. It was probably this kind of lodge covering that Father Rasles referred to as bark cloths. In the excursions of the Norridgewock Indians down the Kennebec to the seashore once or twice every season, when camping for the night they would "cover themselves with bark which they carry with them and which they have rolled out until it resembles cloth."² These

¹ Wood, *op. cit.*, p. 99.

² Kip, *op. cit.*, p. 60.

bark mats are still used as portable lodge coverings from New Brunswick to Lake Winnipeg, and in early historic times were doubtless common to the canoe birch region throughout the Algonquian area.

The poorer wigwams were sometimes covered with a thatch of reeds, grass, or corn-husk,¹ or with boughs of trees.²

HOUSE FURNISHINGS

The walls of the more permanent habitations were lined with embroidered mats,³ or with mats of rushes painted in several colors.⁴ These mats were also used as bedding and to sit upon. The lining mats of the Ojibwa are probably very similar to those of New England, the woof of these being composed of rushes, the warp of twisted cords of bast. The color of the ground-work is the natural brownish-yellow of the dried rushes, and pleasing patterns are produced in considerable variety by weaving in rushes dyed in various colors. Some of these mats bear a very close resemblance to the simpler kinds of Japanese straw matting.

In the smaller lodges a single fire was sufficient for the family. In the larger habitations two, three, or more fires were required according to the number of occupants. Hearths were often made of small field stones. Sometimes a post reaching to the roof was set up beside the fireplace, the upper end being secured to a cross-piece. At a convenient height a pin was driven into the post, and upon the pin the kettle was hung. At the foot of the post a broad, flat stone was set up to protect the post from the fire.⁵

Sometimes a scaffold about two feet high was built over the fireplace by driving four crotched sticks into the ground. Cross-bars were laid over the crotches, and over these and at right angles to them were placed sticks,⁶ upon which fish and other food was dried and smoked. The fire was usually made of dry wood (windfalls),

¹ Champlain, *op. cit.*, pp. 83, 124.

² Higgeson, *New England's Plantation*, Mass. Hist. Coll., 1st s., vol. 1, p. 123, repr. 1859.

³ Williams, *op. cit.*, p. 47.

⁴ Josselyn, *op. cit.*, p. 98.

⁵ *Ibid.*

⁶ Mourt, *op. cit.*, p. 39.

but sometimes a tree was felled and the log drawn into the lodge. The fire was maintained at either side near one end, the log being gradually pushed onto the hearth until all was consumed.¹ Small torches made of pitch pine "cloven into little slices" were used as occasion required for lighting the interior of the hut.² Fire was produced both by friction and percussion, the latter process being more common.

The people sometimes slept upon mats and skins placed on the ground, but in the better class of habitations bedsteads were made by setting forked sticks into the earth, which supported stout poles a foot or eighteen inches from the ground. Over these, at right angles were laid other poles, or planks split from logs.³ In the large houses the beds were six or eight feet wide, being large enough to accommodate three or four persons.⁴ The bedding consisted of a reed mat "two or three fingers thick,"⁵ or of mats and skins.

For household utensils there were mortars and pestles of stone and wood; basket sieves for sifting cornmeal;⁶ boxes, buckets, and dishes of birch-bark; wooden dishes; baskets and bags of various sorts, and earthen pots. Trays, bowls, and ladles were made "very smooth and artificial and of a sort of wood not subject to split."⁷ "They have dainty wooden bowles of maple of highe price amongst them; and these are disposed by bartering one with the other and are but in certain parts of the Country made, where the several trades are appropriated to the inhabitants of those parts onely."⁸ These were made from the knotty parts of the maple and other hard woods by charring and scraping, the surface being afterward ground smooth and polished. They were of graceful form, with wall of uniform thickness, the curly grain of the knots showing to advantage. Ladles and spoons were wrought from the

¹ Morton, *op. cit.*, p. 135.

² Higgeson, *op. cit.*, p. 122.

³ Champlain, *op. cit.*, p. 125. Morton, *op. cit.*, p. 135.

⁴ Gookin, *op. cit.*, p. 150.

⁵ Champlain, *op. cit.*, p. 125.

⁶ Gookin, *op. cit.*

⁷ *Ibid.*, p. 151.

⁸ Morton, *op. cit.*, p. 159.

crooked, knotty branches of the mountain laurel ("spoon wood"). Buckets with bails, boxes of various sizes, platters, etc., were made of birch-bark. The buckets were for holding liquids, the seams being rendered tight with spruce-gum. "Delicate sweet dishes too" they have of birch-bark ornamented upon the outside with "flourisht works, and upon the brims with glistering quills taken from the Porcupine, and dyed, some black, others red, the white being natural."¹ The inner side of the white birch-bark used in making dishes and boxes is of a reddish brown color. This side was generally taken for the outer side of the dish. Ornamental designs often covering the entire outer surface were made by scraping away portions of the thin brown inner layer until the desired pattern appeared in the light yellow of the bark beneath. The rim was finished by enclosing the edge of the bark between two wooden hoops, and carefully sewing all together with split spruce roots. Sometimes porcupine quills were used in ornamenting the rim by being woven into the spruce-root wrappings. Baskets and bags were of many kind and sizes.²

Earthen pots such as "they seeth their food in, which were heretofore, and yet are [1674] in use among some of them, are made of clay or earth almost in the form of an egg, with the top taken off . . . the clay or earth they were made of was very scarce and dear."³ These pots varied in size from a quart to two or three gallons.⁴

The following is an excellent description of the wigwams and their furnishings, seen by the Pilgrims at Cape Cod in 1620:⁵

"The houses were made with long yong Sapling trees bended and both ends stucke into the ground; they were made round like unto an Arbour, and covered downe to the ground with thicke and well wrought matts, and the doore was not over a yard high, made of a matt to open; the chimney was a wide open hole in the top, for which they had a matt to cover it close when they pleased; one might stand and goe upright in

¹ Josselyn, *op. cit.*, p. 111.

² Willoughby, *Textile Fabrics of the New England Indians*, *American Anthropologist*, 1905, vol. 7, p. 85.

³ Gookin, *op. cit.*, p. 151.

⁴ Morton, *op. cit.*, p. 159.

⁵ Mourt, *op. cit.*, pp. 39, 40.

them, in the midst of them were foure little trunches knockt into the ground, and small stickes laid over, on which they hung their Pots and what they had to seeth; round about the fire they lay on matts, which are their beds. The houses were double matted, for as they were matted without, so were they within, with newer & fairer matts. In the houses we found wooden Boules, Traves and Dishes, Earthen Pots, Hand baskets made of Crab shells, wrought together; Also an English Paile or Bucket, it wanted a bayle, but it had two Iron ears: there were also Baskets of sundry sorts, bigger and some lesser, finer and some coarser: some were curiously wrought with blacke and white in pretie works, and sundry other of their household stuffe: we found also two or three Deeres heads, one whereof had bin newly killed, for it was still fresh; there was also a company of Deeres feete stuck up in the houses, Harfs horns, and Eagles clawes — and sundry such like things there was; also two or three Baskets full of parched Acornes, peeces of fish and a peece of broyled Hering. We found also a little silke grasse and a little Tobacco seed, with some other seeds which wee knew not; without were sundry bundles of Flags, Sedge, Bullrushes and other stuffe to make matts.

PERMANENCY OF VILLAGES

The members of each tribe or community were the recognized proprietors of certain hunting, fishing, and agricultural lands, held generally in common. According to Williams they were "very exact and punctuall in the bounds of their Lands belonging to this or that Prince or People (even to a River, Brooke &c.). And I have knowne them to make bargaine and sale amongst themselves for a small peece or quantity of Ground."¹ Good agricultural lands and good hunting and fishing grounds were necessary for the well-being of every community. In some regions these were combined in a comparatively small area and the village was in a measure permanent. In other localities they were widely separated, and the village or groups of people belonging to the community rotated from place to place according to the season. The winter villages were usually situated in warm, thickly wooded valleys near some lake or river. In the early spring the people moved to their fishing places, and when planting season arrived they sought their summer fields. During the latter season they would often remove from one part of

¹ Williams, *op. cit.*, p. 89.

their fields to a fresh place "because of the abundance of fleas which the dust of their house breeds." During the intervals between planting, cultivating, and gathering their corn and vegetables, groups and families made excursions to their clam-beds or other localities in search of food. After the harvest was gathered they sometimes removed to a hunting house, "and forsake it not until Snow lie thick, and then will travell home, Men, women and children thorow the snow, thirtie, yea, fiftie or sixtie miles; but their great remove is from their Summer fields to warm and thicke woodie bottomes where they winter."¹ Lodge frames were sometimes left standing ready for the portable mats if the owners returned to the same spot.

The Indians were very expeditious at their removals. "They are quicke; in halfe a day, yea, sometimes at a few houres warning to be gone and the house up elsewhere, especially if they have stakes ready pitcht for their Mats."² Josselyn writes: "I have seen half a hundred of their Wigwams together in a piece of ground, and they show prettily, within a day or two or a week they have been all dispersed."³

FORTS

Most communities had as their headquarters one or more fortified enclosures, where the people dwelt at certain seasons, or into which they moved in time of danger. The larger forts consisted of more or less permanent villages of a score or more of cabins enclosed by a high palisade. The smaller ones were forty or fifty feet in diameter and contained a single cabin. The construction of the fortifications was practically the same whether they contained one or fifty houses. Some were rectangular, others circular. The smaller ones had but one entrance, while the larger had two, one on each side.

In constructing a fort all the people joined in the work. A circular or rectangular plot of ground was marked off and surrounded by a narrow trench about three feet deep. Into this were set close together in a single row "young trees and half trees as thick as a man's thigh or the calf of his leg. Ten or twelve feet

¹ Williams, *op. cit.*, p. 56.

² *Ibid.*

³ Josselyn, *op. cit.*, p. 98.

high they are above the ground and within [the ground] rammed three foot deep with undermining."¹ A trench breast high was usually dug both within and without,² the earth being thrown up against the palisades for the "better shelter against the enemies dischargements." Sometimes the outer trench was omitted.

The entrance to the fort was formed by overlapping the ends of the rows of palisades, leaving a narrow passage between them. When occasion required this passage was stopped with boughs and brush. The outer trench was spanned by a bridge or a log which led to the entrance.³

The palisades were set close together, but open spaces between logs not perfectly straight were unavoidable. Such openings were used as loop holes. Underhill⁴ says the palisades of the Pequot fort were fastened close one to another. Other authorities do not refer to the joining of the palisades.

The fort of the Penobscot Indians was seventy feet long and fifty feet broad. Within were twenty-three well finished wigwams.⁵ There were two forts on the Kennebec, one at Taconock (Winslow), the other at Norridgewock. Both of these contained several cabins. The fort seen by Champlain at Chouacoit (Saco) river was nearly square (fig. 11, d). He writes:

"The savages dwell permanently in this place and have a large cabin surrounded by palisades made of rather large trees placed by the side of each other, in which they take refuge when their enemies make war upon them."⁶

The two circular forts visited by the Pilgrims in eastern Massachusetts were forty or fifty feet in diameter. They each contained a single cabin.⁷ The fort at Natick was also circular.⁸ That of the Pequots in southeastern Connecticut enclosed about an acre of ground⁹ and contained sixty or seventy wigwams.¹⁰ It was circular,

¹ Vincent's Narrative, Orr's repr., in *History of the Pequot War*, p. 105.

² Mourt, op. cit., p. 90.

³ Drake, *History of Philip's War*, p. 58. Mourt, op. cit., p. 90.

⁴ Underhill's Narrative, Orr's repr., in *History of the Pequot War*, p. 78.

⁵ Drake, op. cit., p. 325.

⁶ Champlain, op. cit., p. 67.

⁷ Mourt, op. cit., p. 90.

⁸ Gookin, op. cit., p. 181.

⁹ Underhill, op. cit., p. 78.

¹⁰ Hutchinson, *History of Massachusetts Bay*, vol. 1, p. 78.

with two entrances. The ground-plan is well shown in the engraving in the original edition of Underhill.¹ This drawing, however, is in many respects misleading.

The forts in the southern half of New England were probably not all circular, for Wood writes that some are forty or fifty feet "square." Numerous other fortifications are noted by New England writers. These defences were frequently situated upon a hill top. Philip's fort was on elevated ground three or four acres in extent in the middle of a hideous swamp. The writer recently examined the remains of a circular fort on the top of a hill near Salem, Massachusetts. The earthwork was about fifty feet in diameter with a trench on the inner side only.

GARDENS

Agriculture was universal among the New England tribes. Much of the coast region south of the Saco river, Maine, was under tillage. The high, rocky shores of the central and eastern portion of Maine were not suitable for agriculture, but the fertile river valleys of the interior of this state and throughout New England generally had their well cultivated gardens wherein were grown corn, beans, pumpkins, squashes, artichokes, and tobacco.² According to Williams —

"The women of a family will commonly raise two or three heaps [of corn] of twelve, fifteen or twenty bushells a heap, which they drie in round broad heaps; and if she have helpe of her children or friends, much more."³

Therefore a family would commonly raise from twenty-four to sixty bushels of unshelled corn. This apparently does not include the amount of green corn consumed, which was considerable. Judging by the average yield of the ordinary field of the New England farmer of today, which is but a reproduction of an Indian garden, and taking into consideration the somewhat larger yield of modern varieties of corn, it seems probable that the amount of land ordinarily under cultivation by a single Indian family would

¹ *News from America*, London, 1638.

² Champlain, *op. cit.*, pp. 64, 82.

³ Williams, *op. cit.*, p. 93.

be from half an acre to about one and a half acres, or, in other words, a plot of ground from one hundred and fifty feet to two hundred and fifty feet square. This estimate is corroborated by Gookin, who says the Indian fields at Wabquissit yielded forty bushels of corn to the acre. The Indians taught the colonists their native agriculture — to "cull out the finest seede, to observe fittest season, to keep distance for holes and fit measure for hills, to worme it and weed it; to prune it, and dress it, as occasion shall require."¹

Wood also says that the Indians exceed the English husbandmen in the care of their fields, keeping them clear with their clam-shell hoes, not suffering a weed to "advance his audacious head above their infant corn, or an undermining worm to spoile his spurnes."

When a field was to be broken up they had a "loving sociable speedy way to despatch it; all the neighbors men and women, fortie, fiftie, &c. joyne and came in to helpe freely."² In preparing new land the trees were cut off about three feet from the ground and the branches piled against the trunk and burned. Corn was planted between the stumps and in course of time the stumps and roots were torn up.³ Each family had its garden, which was usually near the summer cabin, although sometimes a family had gardens a mile or two or several miles apart, and when the work of one field was over they would remove their cabin to the other.⁴ In many places along the coast from the Saco to Cape Malabar, Champlain saw well-kept gardens with their accompanying cabins. He describes Nauset Harbor⁵ as three or four leagues in circuit, "entirely surrounded by little houses around each one of which there was as much land as the occupant needed for his support."⁶

Planting time arrived when the leaves of the white oak were as large as a mouse's ear.⁷ On land already cleared the weeds were burned and the ground worked over with instruments of very hard

¹ Wood, *op. cit.*, p. 74.

² Williams, *op. cit.*, p. 92.

³ Champlain, *op. cit.*, p. 115.

⁴ Williams, *op. cit.*, p. 56.

⁵ Near Eastham.

⁶ Champlain, *op. cit.*, p. 81.

⁷ Belknap, *History of New Hampshire*, ed. of 1792, vol. III, p. 93.

wood shaped like a spade. The hills were three feet apart, and in each one were placed three or four kernels of corn and as many beans, and the earth heaped up with the shell of the horseshoe crab.¹ Hoes of wood and clam-shell are also recorded, and Williams says stone hoes were formerly used.² The Stockbridge Indians employed for this purpose an implement made of the shoulder-blade of a bear, moose, or deer, fastened to a wooden handle.³ Sometimes two or three herring or shad (alewives?) were placed in the hill as a fertilizer.⁴ It was the women's work to plant and cultivate the gardens and gather the crops, "yet sometimes the man himself (either out of love for his Wife or care for his Children, or being an old man)" will assist.

Great care was exercised to keep the ground free from weeds and to protect the young plants from the depredations of birds. As before noted, watch-houses were erected for the latter purpose. Williams says that hawks were kept tame about the cabins to keep small birds from the fields, and although the crows did the corn some injury, not one native in a hundred would kill one because of the tradition that a crow brought them their first grain of corn in one of its ears and a bean in the other from the field of the great god Kautantouwit in the southwest.

The corn (*Zea mays*) grown in the gardens of the New England Indians was of several varieties, the colors being red, blue, yellow, and white.⁵ The modern improved varieties differ but little from these earlier kinds. The bean (*Phaseolus vulgaris*) was also of different colors⁶ and varieties. Josselyn writes: "They are variegated much, some being bigger a great deal than others; some white, black, red, yellow, blew, spotted."⁷ This is the common field and garden bean of the New England farmer.

The pumpkin (*Cucurbita maxima*) and the squash (asquash or isquontersquash; *Cucurbita polymorpha*) were probably

¹ Champlain, op. cit., p. 64.

² Williams, op. cit., p. 51.

³ *Extracts from an Indian History*, Mass. Hist. Coll., 1st s., vol. IX, p. 101.

⁴ Young, *Chronicles of the Pilgrim Fathers*, p. 231.

⁵ Mourt, op. cit., p. 34. Higgeson, op. cit., p. 118. Williams, op. cit., p. 91.

⁶ Champlain, op. cit., p. 64.

⁷ Josselyn, op. cit., p. 60.

raised throughout New England. In nearly all of the old-fashioned fields in these states these vegetables are grown in the same hill with the corn, and it is probable that they were thus planted in the Indian gardens. Josselyn in his quaint book, *New England's Rarities*, writes as follows concerning the squashes grown by the natives:

"Squashes, but more truly Squontersquashes, a kind of melon, or rather gourd, for they often degenerate into gourds; some of them are green, some yellow, some longish like a gourd, others round like an apple; all of them pleasant food . . . but the yellow squash because like an apple, and about the bigness of a pome-water is of the best kind."

The well-known modern improved varieties of this vegetable are the descendants of those found growing in the Indian gardens.

The cultivation of the artichoke (*Helianthus tuberosus*) was adopted from the Indians by the colonists as far north as Canada.¹ Its roots were used by the natives as an ingredient in stews. Champlain found it cultivated at Nauset Harbor in 1605, and at Gloucester in 1606.² Tobacco (*Nicotiana rustica*) was raised as far north in New England as the central Kennebec valley.³ It was a smaller and more hardy species than that now grown in warmer climates. This was commonly the only plant cultivated by the men.⁴

The corn was harvested by the women and thoroughly dried on mats, care being taken to cover it at night with other mats and to uncover it when the sun was shining.⁵ When thoroughly dry it was usually stored in caches, although it was sometimes placed in wooden receptacles about three feet high, made by cutting hollow logs into sections, or in baskets, and stored in the wigwam. Morton writes:

"Their barnes are holes made in the earth, that will hold a Hogs-head of corne a peece in them. In these (when their corne is out of the huske and well dried they lay their store in greate baskets which they

¹ Charles Pickering, *History of Plants*, p. 749.

² Champlain, *op. cit.*, pp. 82, 112.

³ Strachey, *History of Travel into Virginia*, Coll. Maine Hist. Soc., vol. III, p. 306

⁴ Williams, *op. cit.*, p. 35.

⁵ *Ibid.*, p. 92.

make of Sparke¹) with mats under about the sides, and on the top; and putting it into the place made for it, they cover it with earth."²

According to Wood the holes were sometimes lined with bark.

Champlain saw "trenches in the sand on the slope of the hills, some five or six feet deep more or less. Putting their corn and other grains into large grass sacks they throw them into these trenches and cover them with sand three or four feet above the surface of the earth, taking it out as their needs require."³

The Pilgrims opened a cache at Cape Cod, being attracted by the heap of sand. In it they found —

"a little old Basket full of faire Indian Corne, and digged further & found a fine great new Basket full of very faire corne of this yeare, with some 36 goodly eares of corne, some yellow and some red, and others mixt with blew which was a very goodly sight; the Basket was round, and narrow at the top, it held about three or four Bushels, which was as much as two of us could lift up from the ground, and was very handsomely and cunningly made."⁴

These old cache holes are still found in many sections of New England where the land has not been cultivated. The writer has counted more than thirty-five in an area of less than half an acre on the side of a sand hill in the Kennebec valley.

¹ According to Trumbull probably the same as *spart*, a northern English name for the dwarf rush and for osiers.

² Morton, *op. cit.*, p. 160.

³ Champlain, *op. cit.*, p. 121.

⁴ Mourt, *op. cit.*, p. 34.

SOME UNSOLVED PROBLEMS IN MEXICAN ARCHEOLOGY

By ZELIA NUTTALL

I

INTRODUCTION

The admirably clear and comprehensive address on the History of Anthropology, read by Prof. Franz Boas at the International Congress of Arts and Sciences held at St Louis in September, 1904, could not but be of special interest to Americanists, for during its course he traced their different methods and theories, their struggles and points of view, past and present, and with rare impartiality touched as follows on the long-continued and still active "controversy as to the independent origin of transmission of certain widespread cultural traits, from one part of the world to another."

"To those investigators who advocate the theory of independent origin, the sameness of cultural traits was assumed as a proof of a regular, uniform evolution of culture; as representing the elementary idea which arises from necessity in the mind of man and which cannot be analyzed as the earliest surviving form of human thought. They would exclude the consideration of transmissions altogether, believe it to be unlikely, deem the alleged proof irrelevant and ascribe sameness of cultural traits wholly to the psychic unit of mankind and to the uniform reaction of the human mind upon the same stimulus.

"On the other hand, Friedrich Ratzel, whose recent loss we lament, inclined decidedly to the opinion that all sameness of cultural traits must be accounted for by transmission, no matter how distant the regions in which they are found.

"Side by side with these two views exists a third, represented by Gerland and a minority of investigators, namely, that such cultural traits are vestiges or survivals of the earliest stages of a generalized human culture."

After recording the above conflicting views, Professor Boas justly observes:

"It is evident that this fundamental question cannot be settled by any amount of discussion of general facts, since the various explanations are logically equally probable. It requires actual investigation into the individual history of such customs to discover the causes of their present distribution."

It was doubtless intentional on the part of the organizers of the Congress that the two addresses by foreign speakers which followed that of Professor Boas were by equally distinguished extremists holding radically opposed views concerning the origin of ancient Mexican and Central American civilizations, viz., Sr Alfredo Chavero, of Mexico, who assumes transmission, and Prof. Eduard Seler, of Berlin, who upholds autochthony.

The presentation, at a single session, of the problem as seen from two different standpoints, naturally raised, in the minds of unbiased investigators (with which I venture to class myself), the question whether it is not premature to so positively deny or affirm the autochthony of these ancient civilizations.

As far as ancient Mexico is concerned, it is my experience, for instance, that even after twenty years of study I have barely penetrated its vast field of investigation, and that the more I explore its untrodden paths and discern its multifarious contradictory and perplexing features the less I am inclined to formulate definite conclusions concerning the point at issue. Frequently the discovery of unknown or unworked material, or the unexpected results obtained by the pursuit of a fresh line of research, oblige students in our comparatively unexplored field to alter or at all events to readjust their views or working hypotheses.

It has thus happened that my recent reëxamination of certain correlated facts by the light of fresh knowledge has confirmed me in my desertion from the comfortable autochthonistic point of view. While I can understand the attractions and advantages of the latter, I cannot understand how any one acquainted with the said group of facts can assert off-hand, as some extremists do, that no authentic evidence has been met with in Mexico or Central America which, even remotely, seriously suggests ancient foreign influence or contact. While it is inevitable that radical differences of opinion will be evoked concerning the interpretation to be placed upon them, I

must believe that no unbiased reader, after examining the facts I am about to set forth, will deny their authenticity, interest, or claim to serious consideration.

MONTEZUMA'S EVIDENCE AS TO HIS ANCESTRY AND ORIGIN

Even the most extreme autochthonists will surely admit that no authority on the question of their own history and origin could be higher than that of a member of what Dr Albert Réville describes as "the firmly-organized Mexican priesthood in which was centered the whole intellectual life and all that can be called the science of Mexico."

The highest value must therefore be assigned to the utterances of Montezuma, the high-priest and ruler, concerning his ancestry and origin, as translated by Doña Marina to Cortés and his companions. Cortés, whose acumen no one denies, reported Montezuma's words to the Emperor Charles V in his well-known second letter written from Villa Segura de la Frontera, October 30, 1520. The following is a careful literal translation of the discourse addressed by Montezuma to the Spaniards assembled in his palace, as reported by Cortés :

"For a long time and by means of writings, we have possessed a knowledge, transmitted from our ancestors, that neither I nor any of us who inhabit this land are of native origin.

"We are foreigners and came here from very remote parts. We possess information that our lineage was led to this land by a lord to whom all owed allegiance [vassalage]. He afterward left this for his native country and returned again, but after so long an absence that, meanwhile, those who had remained behind had married native women, had raised large families and built towns in which they lived. When he wished to take them with him they not only declined to go, but refused to acknowledge him as their lord.

"Consequently he left without them, returning whence he came, but we have ever believed that his descendants would surely come here to subjugate this land and us who are, by rights, their vassals.

"Because of what you say concerning the region whence you came, which is where the sun rises, and because of the things you relate about the great lord or king who sent you thence, we believe and hold as certain that he must be our rightful [natural] lord, especially since you say that, for a long time past, he has known about us. This much you may be cer-

tain of: that we will obey you and hold you as lieutenant of this great lord of whom you tell us, and this we will do without fail or deceit. And, throughout this land, that is to say, in all of it that I possess by virtue of my lordship, you can command at your will, for you will be obeyed. All that we possess is at your disposal, and since you now are in what rightfully belongs to you, and in your own house, take your ease and rest from the fatigues of your journey and of the wars you have gone through. . . . Neither you nor your people will receive harm, for you are in your own house and that which is rightfully yours. . . ."

After the above Cortés writes:

"I replied to all he said, satisfying him, which seemed expedient, especially making him believe that it was Your Majesty whom they had been expecting. . . ."

The above statements by Montezuma are strikingly corroborated by his subsequent harangue to the assembled native chieftains, in which he appealed, without contradiction, to their familiarity with the fact of his ancestry and origin, in the following terms:

"MY BROTHERS AND FRIENDS: You already know that, for a long time past, your fathers and grandfathers have been subjects and vassals of my predecessors, just as you now are my subjects and vassals. You and yours have always been and are still treated well and honorably by us, and you, for your part, have fulfilled the obligations of good and loyal vassals toward their rightful lords.

"I also believe that your own ancestors must have handed down to you the record that we are not natives of this land but came to it from another very distant country, led by a lord. . . . When he returned after a long absence and found that our grandfathers would not accompany him nor accept him as the lord of the land, he departed, leaving word that he would return or send some one with such authority and power that they would be constrained and forced back into his service. And you well know that we have always expected this lord, and now, from what the Captain has told us of the king and lord who sent him here and because of the region from which he says he came, I hold it for certain and you should do the same, that this king is the lord we expected, especially as he tells us that over there they have long had information concerning us. And since our ancestors did not fulfil their obligations to their rightful lord, let us now fulfil ours and render thanks to our gods that that which was long expected, in vain, by our predecessors, has come to pass in our days. I entreat you much, since all of this is well known to you, to

henceforth acknowledge and obey this great king just as you have hitherto acknowledged and obeyed me. For he is your natural sovereign, and as his lieutenant here is his captain, render to him all service and tribute, such as you have given me, for I also must henceforth contribute and serve in all that is ordered me.

"In doing as I beg you to, you will give me much pleasure besides fulfilling what is your obligation and duty."

Cortés continues :

"All of which he [Montezuma] said weeping, with as many sighs and tears as a man could possibly bring forth ; and all those lords who heard him also wept so much that, for a long while they were unable to give him their answer. . . . When their weeping had abated they answered 'that they held him as their lord and had promised to do all that he ordered, and for this reason and *also because of that which he had given them*, they would cheerfully do his bidding.' Henceforth and for always they gave themselves as vassals to Your Highness, and first together and then each one separately they promised to do and fulfil, like good and loyal vassals, all that would be ordered them in Your Majesty's royal name. They also assumed the obligation to render unto you the tribute and service which were formerly given to Montezuma, and to do everything that would be commanded in your name."¹

Montezuma's assumption that his native hearers were familiar with the history of his foreign ancestry is further proven to have been absolutely true by authentic native testimony of utmost importance. We are indebted for this to the distinguished Spanish friar, Bernardino de Sahagun, who came to Mexico in 1529 and lived there until his death, more than sixty years later.

At one time Sahagun assembled the oldest and most learned inhabitants of Texcoco, who dictated to him, in the Nahuatl language, all that they knew concerning their ancient history and traditions.

While at Florence, some years ago, I copied the original Nahuatl notes preserved in the Laurentian Library, from which Sahagun subsequently made the somewhat abridged translation that has been published as his *Historia de Nueva España*. Within the last year I had the interesting experience of showing the Nahuatl text relating to the origin of the Mexicans to one of the best living Nahuatl

¹ Ed. Lorenzana, pp. 81, 96.

scholars, Sr Manuel Rojas, a descendant and the oldest representative of the ancient caciques of Tepoztlan, state of Morelos. At my instance Señor Rojas made a literal translation of this text into Spanish, which I subsequently carefully collated with the original and with Friar Sahagun's Spanish version. The following is a brief rendering of the main facts recorded in the Nahuatl text and in the two independent translations into Spanish, the last one made after an interval of about three and a half centuries :

"The Mexicans are foreigners, for they came from the province of the Chichimecs, and the following is what there is to relate about them :

"Countless years before the arrival of the Spaniards the ancestors of the Mexicans arrived in boats and disembarked, 'in the north', at the port named Panoaya, or Panuco, north of the present port of Veracruz. Under the guidance of their high priest, who carried with him an image of their god named Tloquenauaque (lit. 'the All-embracing One'), which he consulted as an oracle, they traveled inland and founded a town named Tamoanchan, where they lived peacefully for a long time. With these colonists came wise men or diviners who were versed in the written or painted books. These wise men and their leader or high priest did not remain permanently with the colonists, but, leaving them settled in Tamoanchan, reëmbarked in boats and departed eastward, carrying away with them their bundles and their painted books relating to their ritual and to their knowledge of mechanical arts (*tultecaiotl*).

"Before leaving they made the following memorable address to those whom they were leaving behind them : 'It is the will of our lord, the All-embracing One, the Night, the Air, that you are to live here in the land in which we came to leave you. He bestows it upon you . . . here you are to live and guard what has been given to you. . . . He goes and we go with him, but truly he will return to rescue and succor you (*maquix-tiquih*) ; to teach or guide you (*machtiquih*), and to determine the limits or boundaries of the land. . . .'

"Then the divine regents or governors (*teomamaque*) departed with their wrapped bundles. . . . Four aged wise men remained behind, and, assembling, said : 'During the absence of our lord, what method must we adopt in order to rule the people well ? What order is to be instituted, now that the wise men have taken with them the painted books according to which they governed ?' Then they composed the count of nativity signs or celestial luminaries, the year book, the year count, and the book

of dreams,¹ and these remained in use as long as governed the lords of the Toltecs, the Tepanecs, the Mexicans, and the Chichimecs . . . it is not known how long these governed.

"This was, however, recorded by paintings, but these were burnt in the time of the lord Itzcoatl of Mexico, because the lord and princes of that time agreed that it was not expedient that all persons should know such things and that these books should fall into the hands of those who might treat them with contempt or disrespect."²

The text further relates that from Tamoanchan the colonists went to Teotihuacan, where they built the two great pyramids the ruins of which still exist. The above narrative, which was dictated at their leisure by the Texcocan elders, who could scarcely have been informed of the contents of Cortés' letter to Charles V, will be found to agree substantially with Montezuma's words.

Further corroboration of his evidence is furnished by another text dictated by the Texcocans to Sahagun, namely, that of the fine address of welcome delivered by Montezuma, in the presence of a multitude of hearers, when he first met the Spaniards. It completes the native verbatim reports of Montezuma's utterances that have been preserved, and for dignity of expression and beauty of language is one of the finest specimens of native discourse that has been preserved :

"Oh, our lord, be welcome ! You have arrived in your country, your town, and your house, Mexico. You have come to seat yourself on your throne and in your chair which I have been occupying for some time in your name. Other lords, who now are dead, occupied it before me. Their names were Itzcoatl, Moctezuma the Elder, Axayacatl, Tizoc, and Ahuitzotl. I, the last of them all, came to be the one to have the care and governing of your town, Mexico. We all in turn have borne on our shoulders the burden of your republic and your vassals. Would that some of those who have departed and cannot see or know what is happening, were living now and that what is now happening had taken place in their time. But, our lord, they are absent, and with my own

¹ The above is an exact literal translation of Friar Sahagun's Nahuatl text of the passage which, after a lapse of thirty years, he freely rendered into Spanish as follows : " They invented judicial astrology, the art of interpreting dreams, and composed the count of the days, of the nights, of the hours, and the differences of times [seasons]. " — Book X, chap. 29, ¶ 11.

² *Ibid.*, ¶ 12.

eyes, without being either asleep or dreaming, I behold your face and your person. For many days have I expected this, and my heart has been going out toward the regions whence you have come, from the place which is hidden to all and is behind clouds and mists. I now see that it was true what the departed lords left word with us: that you would return to reign in these realms and would seat yourself on your throne and in your chair. Be welcome! Rest now after the labor you have had in coming such long ways. This is your house and these are your palaces—take them and rest therein with your captains and the companions who have come with you."¹

My quotation of the above texts in full, notwithstanding the repetitions they contain, is excusable for the reason that, collectively, they constitute the most authentic and valuable testimony we possess concerning Montezuma's origin and ancestry.

It will be seen that the name Quetzalcoatl does not appear in any of these, the earliest texts; nor do they contain any reference of a religious or superstitious nature to the sun or to any deity excepting "the All-embracing One" and "our gods."

It is my belief that it would scarcely occur to any one, on reading the above texts for the first time, to interpret Montezuma's account of his ancestry as a solar myth, or to identify the reputed leader of the colonists as a "solar god" or "dawn hero."²

Yet, notwithstanding the incongruity of certain details recorded (as, for instance, the fact that, *unlike the sun, the solar god took his departure toward the east*), the current belief is that Montezuma narrated "the Quetzalcoatl myth"³ to the Spaniards and that he sacrificed himself and his people to a foolish superstitious belief in an imaginary god or hero. It seems strange that, if this was actually the case, the astute Cortés did not simply inform the emperor that Montezuma had recounted to him "a ridiculous fable about their gods," a phrase often used by his contemporaries in speaking of native religious myths. And what is stranger still, is that the keen-minded Friar Sahagun, who obtained a deep knowledge of the native religion and superstitions, writes naught about a connection

¹ Op. cit., book XII, ¶ 16.

² See D. G. Brinton, *Myths of the New World*, p. 186.

³ See H. H. Bancroft, *History of Mexico*, vol. 1, p. 289.

between this historical tradition and a religious or solar myth. Nor does Bernal Diaz, who was present when Montezuma delivered his discourse and who described its contents from memory after a lapse of forty-eight years, mention the name of Quetzalcoatl or state that a fable or religious myth had been related.

It being impossible for me to attempt to trace here the evolution of the Quetzalcoatl myth, I cannot do more than to point out the facts that the ancient Mexicans, like ourselves, applied the word "lord" to the deity as well as to a superior, and that the name Quetzalcoatl, besides being the name of the Air-god, was also a title assumed by a certain grade of priesthood. Under such circumstances it was inevitable that a confusion of persons and titles should have been made and that Montezuma's testimony should have thus become invalidated and dismissed as irrelevant.

I cannot but think, however, that a careful and unbiased study of the above original texts, the Nahuatl version of two of which have hitherto been inaccessible to students, will convince others, as it has me, that Montezuma absolutely believed in the foreign origin of his ancestors and sacrificed his power and position to what might be termed a quixotic conception of his duty toward the rightful, though remote, sovereign of his people. The argument that he so successfully employed to persuade his subordinate chieftains to transfer their allegiance from him to Cortés, namely, that it was his and their duty to make amends for the insubordination and disloyalty of their forefathers toward their lord, while comprehensible if that leader was a real, though unpopular, personage, would seem singularly irrelevant in connection with mythology. Nor do any passages in the texts contradict, so far as I am able to see, the impression they so clearly convey that Montezuma's attitude toward the Spaniards was influenced by a plain historical tradition handed down from his forefathers.

Without entering here into a discussion of the problem whence the foreign colonists came to the eastern coast of Mexico, I will but emphasize the remarkable but undeniable fact that the strange language and appearance of the Spaniards and the distance of their journey across the ocean only confirmed Montezuma in his belief that these strangers came from the original home of his ancestors.

The hypothesis that these ancestors came to the eastern coast of the Gulf of Mexico from some other part of the American continent, from the peninsula of Yucatan, for instance, consequently involves the less plausible theory that Montezuma believed that the Spaniards also hailed from these adjacent and familiar regions. Whatever other interpretations may be put upon them, the foregoing data conclusively show that Montezuma, who, of all Mexicans, best knew the traditions of his race, believed that these furnished an overwhelming and positive proof that his line had originated in a land over the sea, as remote as Spain was said to be.

In conclusion, the problem here submitted for impartial judgment is, whether Montezuma's genuine belief in his foreign ancestry and its far-reaching influence on his actions merits, as I maintain, our serious consideration and acceptance as important historical evidence, or whether it deserves the treatment it has received from some champions of autochthony who either overlook it entirely or endeavor to eliminate it from the pages of Mexican history by denouncing it as irrelevant and valueless and fit only to be consigned to the nebulous realm of mythology.

II

THE ORIGIN OF THE ARTIFICIAL THEORY OF THE FOUR ELEMENTS

In Sahagun's original Nahuatl text, which is quoted in the preceding essay, the invention and the institution of the calendar and form of government which were in use at the time of the Spanish conquest of Mexico, as well of as the building of the great pyramids the ruins of which still exist, are attributed to the foreign colonists who were said to have arrived from the east in ancient times, in boats, and landed at Panuco on the coast of the Gulf of Mexico.

According to said text, it was after the departure of their leader that four elders agreed to institute a tetrarchy and devised the calendar as a means of regulating and controlling communal life.

Torquemada,¹ the Spanish historian, gives the following additional details concerning this episode:

"These four lords jointly constituted the head of the government. Nothing could be done throughout the republic without the consent of all

¹ *Monarquía Indiana*, book XI, chap. 24.

four . . . they divided the city and province into four parts, forming four principalities or tetrarchies. . . ."

One of the most striking examples of a tetrarchy which existed in Mexico when the Spaniards arrived was the small republic of Tlaxcala.

An examination of the ancient Mexican calendar reveals its perfect accord with a tetrarchical system of government. Its twenty-day period is formed by four principal day-signs (which were also year-signs), each of which presided over four minor day-signs. Its solar cycle of $4 \times 13 = 52$ years was formed by the rotation of the four principal signs, representing a reed, a flint knife, a house, and a rabbit. These signs were symbolical of the four elements and were associated with the cardinal points and the sacred elemental colors: blue, red, yellow, and green.

In the center of the so-called Mexican calendar-stone, which exhibits a synopsis of the great tetrarchical plan or system of the native philosophers, symbols corresponding to the four elements are carved in an *ollin*, a quadruplicate sign which is employed in native pictography to express movement or motion. Resting on the hieroglyph for earth, this *ollin* signifies, for instance, an earthquake.

While the said sculptured monument thus demonstrates that the ancient Mexicans associated the united four elements with movement, i. e., life, their mortuary custom of clothing a dead chieftain in succession with perishable garments of the four elemental gods and their colors indicates a belief that death was a dissolution and return to the elements — earth, air, fire, and water.

Ever since the above indications came under my notice I have been deeply interested in the fact which they undeniably establish, namely, that the ancient Mexicans not only believed in the existence of the said four elements but also deified and symbolized them and incorporated them in their artificial system of government by means of an ingenious cyclical calendar.

To me the presence of this group of correlated ideas in pre-columbian America seemed very remarkable, strange, and perplexing, especially after I had investigated the evolution of the artificial theory of the four elements in other ancient civilizations.

On communicating some of the results of my investigations to

certain of my colleagues, I found that none shared my keen interest in the question, their view being the same as that expressed by Dr Daniel G. Brinton: "The simple theory that the world is composed of four elements, fire, water, air and earth, is one which presents itself so naturally to primitive thought that traces of it can be seen in most mythologies which have passed beyond the rudimentary forms."¹

According to my colleagues the tetrarchical form of government and the cyclical calendar were also only the natural products of the primitive mind.

I confess that, much as I respected the views expressed, they did not satisfy or convince me.

A prolonged investigation of the evolution of philosophical speculation had taught me that, for instance, in Greece the artificial doctrine of the four elements was not formulated until Greek philosophy had reached what George Henry Lewes designates as "the second epoch in its development, in which the failure of earlier cosmological speculations directed the efforts of the philosophers (i. e., Heraclitus, Anaxagoras, Empedocles, and Democritus) to the psychological problems of the origin and limits of knowledge."²

The following extracts from Lewes' writings furnish an outline sketch of the process by which, after several centuries of speculation, Greek thinkers evolved the identical "simple theory of the four elements" that, in ancient America, is said to have naturally presented itself to the primitive mind.

More than a century before the birth of Heraclitus, Thales (640-550 B. C.) had formulated the doctrine of a single original and eternal element—Water, the beginning of all things. To Anaximenes it was Air that seemed the very stream of life.

Diogenes of Apollonia adopted the tenet of Anaximenes respecting Air as the origin of things, but gave a wider and deeper significance to the tenet by pointing out the analogy of Air with the soul, or vital force, and thus opened the way to Anaximander of Miletus, the father of abstract and deductive philosophy and the first of the mathematicians to formulate the doctrine that not water, nor air, but the "Infinite is the origin of all things."

¹ *Religions of Primitive Peoples*, p. 141.

² *History of Philosophy*, vol. 1, p. 66.

Then followed the Eleatics, one of whom, Zeno, closes the second great line of independent inquiry opened by Anaximenes.

Heraclitus (b. 503 B. C.) conceived the doctrine of all things as a perpetual flux and reflux, and of Fire as the principle of all things. He affirmed Fire to be both the principle and the element — both the moving, mingling force and the mingled matter; and formulated the phrase: "Strife is the parent of all things."

Fire, which here stands as the semi-symbol of Life and Intelligence, because of its spontaneous activity, is but a modification of the Water of Thales and the Air of Anaximenes.

Anaxagoras proclaimed the All to be the Many and Intelligence [*Nous*] to be the moving force of the Universe which caused the mass of elements to become arranged in one harmonious, all-embracing system. "The *Nous* has moving power and knowledge . . . it initiates movement."

Drawing special attention to the fact that while vital importance was attached to "movement" by Anaxagoras, the central thought of Pythagorean philosophy is the idea of number. In his monograph on the subject¹ the Rev. G. Oliver quotes Philolaus, who says:

"Number is great and perfect, omnipotent and the principle and guide of divine and human life. Number is then the principle of order, the principle on which the Cosmos or ordered world exists. . . . The decade, as the basis of the numerical system, appeared to (Pythagoreans) to comprehend all other numbers in itself. . . also the number four because it is the first square number and is also the potential decade: $1 + 2 + 3 + 4 = 10$. Amongst the ten principia or fundamental oppositions formulated by the Pythagoreans are odd and even, right and left, male and female, light and darkness, etc."

According to Oliver it was Pythagoras who was celebrated as the "discoverer of the holy Tetraktos, the fountain and root of ever-living nature, or the Cosmos consisting of Fire, Air, Earth and Water, the four roots of all existing things."

Lewes, on the other hand, attributed to Empedocles "the conception of earth as a fourth element" and the "principle that the primary elements were four, viz.: Earth, Air, Fire and Water. Out of these all things proceed; all things are but the various ming-

¹ *The Pythagorean Triangle.*

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lings of these four. Nothing is there but a mingling and then a separation of the mingled" Commenting on these theories Lewes here states (and I emphasize with italics the importance of his statement): "*Now, that this is an advance on the preceding conceptions [of Heraclitus and Anaxagoras in particular] will scarcely be denied. It bears indubitable evidence of being a later conception and a modification of its predecessors.*"¹

To the four so-called Empedoclean elements later philosophers (Xenocrates and Philolaus) added a fifth, the All-embracing ether, the Greek name for which Philolaus gives as *ὄληας*, *ὄλας*, etc.

To me it seems impossible that any one who has followed the evolution of Greek philosophical thought, as set forth by Lewes, can doubt the above-cited characterization of the doctrine of the four elements as the natural outgrowth of previous equally supposititious and artificial deductions.

At the same time I am aware that Prof. L. von Schroeder, of Dorpat, has attempted to prove that the five elements — earth, fire, water, air, and ether (Sanskrit *ākāśa*) — already figure in the Brahmas, were taught in the Samkya philosophy of the Kapila, and were therefore known in India at least as far back as the seventh century, B.C. It is Professor von Schroeder's opinion that Pythagorean philosophy derived the elemental divisions, as well as its science of geometry and number, from India, and in support of the latter assertion he mentions the fact that Samkya, the name of the ancient Indian school of philosophy, signifies "number" and that its followers were therefore designated as "philosophers or teachers of numbers." It is for Greek scholars to establish whether the Pythagoreans derived their tenets from India or whether the doctrines of Pythagoras and Empedocles were carried from India to Greece at the time of the Greek invasion under Alexander the Great in 327 B.C.

However this may ultimately be decided, the remarkable and undeniable fact exists that in the ancient Mexican calendar we have a numerical system of marvelous ingenuity which, according to tradition, was devised as a means of introducing order in the community, as "a guide for human life." It is formed by a combination

¹Op. cit., vol. 1, p. 95.

of odd and even numbers and is ruled by the number four, which is identified with the elements earth, air, fire, and water. What is more, as I have already pointed out, the symbols of the four elements (each in turn accompanied by the number four and in a square) are enclosed in the quadruplicate *ollin*, or sign for movement, which is carved in the center of the most remarkable monument of ancient Mexico.

Unprepared though one may be to face the possibility that the Mexican sculptor was imbued with abstract philosophical ideas, his choice of the *ollin* sign, typifying movement, to encompass the symbols of the four elements, unquestionably demonstrates that he associated his *ollin* with a meaning analogous to that assigned by Philolaus to the *ολαζ*: "that which moves and carries the cosmos, which was composed of the four elements." Strange as it appears, it cannot be denied that the Mexican composite symbol calls to mind Plato's familiar dictum: "Thus there is a perpetual ebb and flow of the elements: the diversity of matter is the cause of constant motion." Much as we would naturally hesitate to invest the carved symbol with the whole significance of Plato's doctrine, one cannot but feel somewhat authorized to do so when one recalls the name *Tloquenauaque*: the "All-embracing One," which is recorded in Sahagun's Nahuatl text as that of the Supreme god of the foreign colonists. For this name is unquestionably identical in meaning with Plato's definition of God as "the One being comprising within Himself all other beings."¹

Besides, the calendar system of ancient Mexico, which incorporates what Lewes designates as "the Empedoclean elements," is a masterpiece of the Science of Numbers, the equal of which does not seem to have been produced by any known disciple of Pythagoras, who, however, idealized Number as the principle of order and the guide of human life.

The more I study this marvelously ingenious cyclical system and realize the advanced knowledge of mathematics and astronomy that it reveals, the less I can understand how it could have been planned without the aid of a cursive method of writing or of registering numbers. From what I have been able to learn, in twenty years of study of the ancient Mexicans, I also find it incompre-

¹ Lewes, *op. cit.*, p. 263.

hensible how these unlettered people could have evolved independently such artificial correlated products of the human mind as the Tetraktos; its association with movement; a tetrarchical system of government; a science of numbers; a cyclical system based on a combination of odd and even numbers; a conception of the deity as "All-embracing," and the pyramid which, to me, seems to be a figuration of the Tetraktos, "the root of all things."

Were we dealing with any other part of the world but America, one would scarcely hesitate to claim that the presence, in Mexico, of the Tetraktos, of the cognate ideas which have been enumerated and of native testimony asserting their foreign origin, justifies the supposition of some form of contact with persons not only imbued with the theories of certain Greek philosophers, but bent on applying them practically.

But we have to do with a portion of the American continent which, though connected with the Old World by a great and comparatively smooth water-way, is generally considered too remote to have been visited by even those venturesome Mediterranean seafarers who, in precolumbian times, constantly braved the dangers of the Bay of Biscay and the northern seas.

I therefore merely present the foregoing data with my doubts and perplexities and the hope that they may receive the attention of those interested in the history of the origin of ancient Mexican civilization. It will be for them to meditate, as I have done, upon the striking contradiction between Brinton's dictum that, in America, "the simple theory of the four elements naturally presented itself to the primitive mind," and Lewes' conclusion that in Greece the identical theory, evolved after centuries of speculation, "bears indubitable evidence of being a later conception and modification of its predecessors." The idea that the Mexicans might, by mere chance, have formulated the theory without associating it with philosophical or cosmological speculations, is refuted by the positive facts that on the most important of native monuments the symbolized elements are enclosed in the sign for movement; that the deity was named "the All-embracing One," and that the four elements were incorporated in a cyclical system of marvelous ingenuity and perfection, which was used to regulate and control communal life under

the tetrarchical form of government. Will future text-books maintain that this whole group of cognate artificialities is a "universal trait of culture," an *Elementargedanke*, such as naturally presents itself to primitive man, and that its presence in ancient America merely proves that, in prehistoric times, this country produced its own school of philosophy, its mathematicians, its Pythagoras, and its Empedocles? To what natural causes will future autochthonists attribute the remarkable circumstance that the primitive aborigine of America hit upon the "Empedoclean elements" instead of the five equally spurious elements of ancient Chinese philosophy, viz., earth, water, fire, wood, and metal? Will the parallel development of the ancient Mexican and Greek tetraktos be cited as an instance of the psychic unity of mankind; or will it be recorded that the internal evidence furnished by the ancient Mexican civilization corroborates native tradition and reveals that its admirable artificial organization is attributable to a small band of learned foreign enthusiasts from over the sea who, at a remote and unknown period attempted, on American soil, what might well be described as a realization of the dream of Greek philosophy, namely, the establishment of "an ideal republic or polity" based on abstract philosophical, mathematical, and cosmological ideas?

In conclusion, the question: Does not Montezuma's evidence, in conjunction with the internal evidence supplied by the Mexican civilization itself, account for the incongruous elements it exhibits? Do they not explain the existence of positive proofs of highly advanced intellectual culture, such as the artificial, ingenious, calendric and governmental systems, along with barbarous and primitive superstitions and customs, an inconsistent combination which, years ago, was recognized and commented upon as follows by the eminent German anthropologist, Prof. Theodor Waitz?

"The Aztecs seem to have been the last offspring or heir of an extremely ancient and admirable civilization, *which it had no share in creating or developing and only imperfectly assimilated*. In its hands the ancient culture was rapidly deteriorating and becoming mixed with barbaric elements."¹

¹ *Anthropologie der Naturvölker*, Leipzig, 1864, part IV, p. 129.

CASA ALVARADO,

COYOACÁN, D.F., MEXICO.

HJALMAR STOLPE

By STEWART CULIN¹

Dr Hjalmar Stolpe, the distinguished Swedish archeologist and anthropologist, who died January 27, 1905, was born in Gäffe, Sweden, April 23, 1841. He was graduated in 1860 from the University of Upsala, from which institution he received the degree of Ph.D. in 1872.

Dr Stolpe's first scientific investigations were in zoölogy, and were particularly devoted to ants. In 1870, aided by the Academy of Science, he studied the ants of the island of Gotland, and in the following year began to apply himself to archeologic research, in which his interest was awakened through his studies of amber, pursued on account of the insects which are enclosed in it. Led by the fact that amber is found in profusion in the so-called "black soil" of the island of Björkö, in Lake Malar, he went there in search of it. His finds inspired him with a desire for archeological investigation, and at his own initiative and expense he carried on excavations in the Björkö soil. These soon attracted the attention of friends of archeological research, and with the aid of national stipends Stolpe continued the work from 1871 to 1879 and in 1881.

In these studies Dr Stolpe was assisted by his general acquaintance with zoölogy, for as a considerable part of the finds consisted of bones of various animals, both wild and domestic, and worked and unworked, much knowledge and perseverance were required in identifying them. Dr Stolpe made a thorough investigation of the large grave-fields on the northern half of Björkö, which he mapped in 1888-89.

These researches are regarded as models of their kind, but Dr Stolpe published only brief accounts of the results. His collections and notes, however, are preserved in the Historical Museum, and it

¹ Condensed from the memoir by Dr Gustaf Retzius in *Ymer*, Häft 1, Stockholm, 1905.



HJALMAR STOLPE, 1841-1905

is hoped that eventually a more detailed account of his discoveries may be made public.

Early in the seventies Dr Stolpe had definitely decided on his future career. In 1872 he visited the museums of Copenhagen, and thenceforward one of the foremost objects of his life was to create a museum of ethnography in his native country. In this, however, he was destined to encounter many difficulties. In 1873 he was appointed as lecturer on Northern archeology at the University of Lund, and in that and the following year he coöperated with Hans Hildebrand, Oscar Montelius, and Gustaf Retzius in the formation of the present Swedish Society for Anthropology and Geography. During this decade Stolpe took an important part in science in Sweden. It was mainly through his initiative that the Society arranged for the general ethnographical exposition in Stockholm, in 1878-79, for which space was provided in the palace of the heir presumptive. He collected for this exhibition a large number of ethnographic objects from Swedish public and private collections, devoting much time to their determination and arrangement, and prepared a comparative catalogue which was published in the Society's periodical. In 1880-'81 Stolpe visited the principal ethnographic museums and private collections in Europe, and in 1883 he rejoiced at receiving a commission as ethnologist to accompany the frigate *Vanadis* on a voyage round the world to secure material for his cherished hope—a Swedish ethnographical museum. From this expedition, which extended over a period of two years, he brought home more than 7,500 specimens, in part from South America where he made excavations at Ancon in Peru, in part from the South Pacific where he investigated the grave-fields of Tahiti and Oahu, and partly from Japan and the East Indies. On his return to Sweden he arranged an exhibition of these collections, which became known as the "Vanadis exhibition," first in Stockholm in 1886, and in the following year in Gothenburg. These collections were incorporated afterward with the other ethnographic collections that had been arranged through him, the whole being opened to the public in the Royal Museum in 1889.

Simultaneously with his ethnographical studies Stolpe was constantly engaged in archeological research, especially in connection

with his duties in the Historical Museum. On the conclusion of the researches at Björkö he was commissioned to investigate the grave-fields in Vendel, Uppland, where some of the most remarkable finds of the Iron age in Sweden had been discovered. Needless to say, this work was carried on with the same care and minuteness that characterized his operations at Björkö. The examination of the caves on the island of Stora Karlsön at Gottland also fell to him and was prosecuted for a long time. It is to be regretted that Stolpe did not find the opportunity to publish more exhaustive descriptions. By nature he was extremely punctilious and critical in the preparation of his writings, desiring them to reach perfection both in form and in content before publication. A series of works of monumental character, both in Swedish archeology and in general ethnology, might have been built upon his researches, but partly through force of adverse circumstance and partly on account of his deep conscientiousness, he was not successful in concluding them before his untimely death.

Stolpe's inclinations and occupations were involved in a long struggle between archeology and ethnography. He had a warm interest in both, though it was apparent that ethnography was the dearer to him. When, therefore, he was commissioned by the Academy of Science to superintend the ethnographical department of the Royal Museum from January 1, 1900, the fondest wish of his life was realized. To administer successfully the duties created by this assignment was, however, no easy task. Although he had made extended observations on the arrangement of foreign museums, had unlimited interest in his work, great practical experience and efficiency, and a highly-developed artistic sense, the external conditions were unfavorable. The ethnographic collections of the Royal Museum were contained in widely separated, rented quarters, in some respects most unsuitable and inadequate, and the means at his disposal for their maintenance and growth were so limited that success seemed impossible. But, thanks to his talent and perseverance, he succeeded in a few years in rearranging the collections on a geographic basis and in so carefully classifying and cataloguing them that the Museum is now as efficient and attractive as it is possible to make it in its present quarters. The collections were rapidly in-

creased, for Stolpe's intense interest in his work inspired interest in others. Notable among the acquisitions were the magnificent collections from Costa Rica, gathered by Mr C. V. Hartman, which were presented by Mr Ake Sjögren, and the collections brought from South America by Baron Erland Nordenskiöld and Count Eric von Rosen. In January, 1903, Dr Stolpe was appointed director of the ethnographical section of the Royal Museum in recognition of his services.

Hjalmar Stolpe's work for ethnography was of an epoch-making character. He was not only the first in Sweden to devote himself after extensive preparatory studies wholly to its interests and to bring together rich collections for a general ethnographical museum, but he made other contributions to the science that won recognition abroad.

During his extensive travels in Europe, in 1880-81, when he visited numerous ethnographical museums, "it soon became apparent," as he said fifteen years later, "that one real key to a scientific treatment of ethnographic objects is found in the comparative study of ornamental art." "It may seem strange," he added, "that this field was not cultivated long before, but such is the case. Many circumstances have contributed to delay the development of this branch of ethnography. The first is probably that the majority of ethnological museums are not yet scientifically arranged." Stolpe, a trained naturalist, at once applied to ethnography the comparative method inaugurated by Sven Nilsson in archeological research, and as a schooled archeologist the typological method that had been so successfully developed and employed by Hans Hildebrand and Oscar Montelius in archeology; and thus he became himself a pioneer in the new ethnology. The English archeologist, Lane Fox, afterward General Pitt-Rivers, is the only one who had previously applied similar methods; but Stolpe was the first in the field to clearly lay down scientific principles and endeavor to explain rationally the problems presented, especially as regards the ornamental art of primitive peoples. In his significant work, "Features of Evolution in the Ornamental Art of Primitive Peoples," published in *Ymer* for 1890-91, and later reprinted in English and German, he presented some of the results of his profound studies along this line.

During his visit to foreign museums in 1880-81, Dr Stolpe, an accomplished artist, made numerous copies of ethnographical objects bearing ornamental designs, and brought home more than 3,000 rubbings of carvings, as well as a large number of detailed sketches. This valuable material, which in the course of years he greatly augmented, made it possible for him later to conduct extensive comparative studies in the art of primitive peoples. Thus he was enabled to establish six different provinces within which ornamentation followed different laws of style among the natives of Polynesia. In 1896 he published an edition de luxe of his "Studies of Ornamental Art: a Contribution to the Biology of Ornamental Designs," which was awarded the Loubat prize by the Academy of Letters, History, and Antiquity. In this work Stolpe gave a clear presentation of the existing knowledge of the decorative art of the North American Indians, as well as a large series of reproductions of a group of South American clubs with carved anthropomorphic and zoöomorphic ornaments that furnish a clear conception of their typologic development.

In the fall of 1903 Dr Stolpe visited the United States as a delegate to the Thirteenth International Congress of Americanists and made many warm friends among his scientific colleagues in America.

At home Stolpe was esteemed from his youth as a comrade among a large circle of friends. His pleasant address and fine conversational talent, with his superior education and agreeable wit, made themselves widely felt. He was tall of stature with handsome features of the genuine Northern type, and, gifted with a fine, powerful voice, he was a particularly popular Bellman singer. From his appearance one would have imagined him still a young man, since the vigor of youth, with a cheerful, jocular temperament, seemed to retard the effect of advancing years. He possessed the sensitiveness of the artist and the poet, a sensitiveness that was especially apparent when his ideals of justice were shocked by wrongs perpetrated by so-called civilized people upon primitive folk. As an author he possessed a good style, which is well illustrated in his excellent sketches of the Danish ethnographer Kristian Bahnsson and of Anders Retzius. He was a close student, often

working late into the night at the expense of his health. He was happy in his home life, which was made beautiful by a wife and daughter whose lives were examples of unselfish devotion. His daughter, the apple of his eye, assisted him for several years in his scientific labors.

Stolpe was not only Sweden's first real ethnographer, but was one of the foremost champions of the science in his generation. The Ethnographical Museum in Stockholm, wherever it may find its final place, will remain his perpetual monument.

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BOOK REVIEWS

Lectures on the Early History of the Kingship. By J. G. FRAZER.
New York: The Macmillan Co. 1905. 12°, 309 pp. (Price \$2.75.)

This work consists of a series of nine lectures originally delivered at Trinity College, Cambridge, under the title of "The Sacred Character and Magical Functions of Kings in Early Society." "Substantially," the author adds, "they consist of a series of extracts from the forthcoming third edition of my book *The Golden Bough*, which will contain fuller information on many points."

In spite of a certain lack of completeness which this statement naturally leads one to expect, the above work exhibits its author's characteristic, suggestive style so familiar to all students of Anthropology, and his usual breadth of information. He begins, as in *The Golden Bough*, by presenting the curious ethnological problem of the "king of the woods" at Nemi, to the solution of which the remainder of the material here presented is made to subserve. In the second lecture he discusses the priestly and magical characteristics of the kingship in many countries, and in connection therewith enters upon a treatment of magic generally, which he divides into "homœopathic magic" based on "the law of similarity," and "contagious magic" based on "the law of contact." These terms are undoubtedly suggestive, though it might be questioned whether one of them does not cast an unnecessary slur upon a certain school of medicine. Through most of the succeeding lecture this discussion is continued, but toward the end the relation of magic to the kingship is again brought forward, and the thesis that kings have evolved out of an early class of magicians presented. In lecture five material is assembled tending to show that a magician evolves not merely into a king but into a god as well. In lectures six and seven the author takes up the subject of sacred marriages, including the ceremonial marriages between inanimate objects, or between inanimate objects and human beings,—gone through in order to affect the course of nature,—and particularly the marriages of mortals with immortals. In lecture eight the popular theory of a primitive matriarchal state of society is touched upon and several ingenious suggestions introduced regarding early social conditions in Rome and Latium: The overthrow of kingly power in Rome Mr Frazer suggests may have been partly owing to an attempt of Tarquin the Proud to alter the law of suc-

cession from the female to the male line. Lecture nine contains a general summary and a return to the "king of the woods" in an attempt to explain his character in the light of the facts adduced. More important, however, than the explanation of this one phenomenon are the general theories which accompany it, the principal of which are summed up on pages 278 to 280, as follows:

"We have found that at an early stage of society men, ignorant of the secret processes of nature and of the narrow limits within which it is in our power to control and direct them, have commonly arrogated to themselves functions which in the present state of knowledge we should deem superhuman or divine. The illusion has been fostered and maintained by the same causes which begot it, namely, the marvellous order and uniformity with which nature conducts her operations, the wheels of her great machine revolving with a smoothness and precision which enable the patient observer to anticipate in general the season, if not the very hour, when they will bring round the fulfillment of his hopes or the accomplishment of his fears. The regularly recurring events of this great cycle, or rather series of cycles, soon stamp themselves even on the dull mind of the savage. He foresees them, and foreseeing them mistakes the desired recurrence for an effect of his own will, and the dreaded recurrence for an effect of the will of his enemies. Thus the springs which set the vast machine in motion, though they lie beyond our ken, shrouded in a mystery which we can never hope to penetrate, appear to ignorant man to lie within his reach: he fancies he can touch them and so work by magic art all manner of good to himself and evil to his foes. In time the fallacy of this belief becomes apparent to him: he discovers that there are things he cannot do, pleasures which he is unable of himself to procure, pains which even the most potent magician is powerless to avoid. The unattainable good, the inevitable ill, are now ascribed by him to the action of invisible powers, whose favor is joy and life, whose anger is misery and death. Thus magic tends to be replaced by religion, and the sorcerer by the priest. At this stage of thought the ultimate causes of things are conceived to be personal beings many in number and often discordant in character, who partake of the nature and even of the frailty of man, though their might is greater than his, and their life far exceeds the span of his ephemeral existence. Their sharply marked individualities, their clear-cut outlines have not yet begun, under the powerful solvent of philosophy, to melt and coalesce into that single unknown substratum of phenomena, which, according to the qualities with which our imagination invests it, goes by one or other of the high-sounding

names which the wit of man has devised to hide his ignorance. Accordingly, so long as men look on their gods as beings akin to themselves and not raised to an unapproachable height above them, they believe it to be possible for those of their number who surpass their fellows to attain to divine rank after death, or even in life. Incarnate human deities of this latter sort may be said to halt midway between the age of magic and the age of religion. If they bear the names and display the pomp of deities, the powers which they are supposed to wield are commonly those of their predecessor, the magician. Like him, they are expected to guard their people against hostile enchantments, to heal them in sickness, to bless them with offspring, and to provide them with an abundant supply of food by regulating the weather and performing the other ceremonies which are deemed necessary to insure the fertility of the earth and the multiplication of animals. Men who are credited with powers so lofty and far-reaching naturally hold the highest place in the land, and while the rift between spiritual and temporal spheres has not yet deepened too far, they are supreme in civil as well as religious matters; in a word they are kings as well as gods. Thus the divinity which hedges a king has its roots deep down in human history, and long ages pass before these are sapped by a profounder view of nature and of man."

These and similar theories of religious and social evolution are not altogether new. In fact they are treasured by a certain school of ethnologists as assured facts and as the *sine qua non* of anthropological investigation. At the same time they are open to many very serious objections. Although magic certainly does play a great part in the religion of those people which we are wont to call "primitive," the tribe has yet to be discovered in which religion consists of nothing else, and so long as that is the case Mr Frazer's statement of the evolution of religion from magic must remain the theory of a man or of a school, and subject to the vicissitudes of any other unproved hypothesis, by no means entitled to consideration as an organic part of science. Moreover, it is one thing to suppose that certain men or even bodies of men imagine that they can affect natural phenomena, but quite another to maintain that the mass of primitive men ever believed that they actually created or produced them, and it is just this imagined production on the part of the masses which the theory here advanced makes necessary.

Nor does our author's hypothesis regarding the evolution of kings appear to be founded on a much firmer basis. In Indian society, at all events, a sharp line must be drawn between the shaman or conjurer who acts as an individual, or perhaps as a member of a secret order, and the

priest whose functions are national. The former may be, and sometimes is, a chief, but his supernatural abilities are not at the basis of his secular leadership. On the contrary they are a mere appanage or "accident" of his position, while either heredity, or wealth, bravery, sagacity, and all those virtues which bring power to individuals in civilized society are the real bases of his authority. The priestly functions, being tribal in character, lend themselves to union with civil chieftainship much more readily, but in few instances can the original functions of the priest-king be shown to have been purely ecclesiastical, and in any case it is by no means certain that the priest has evolved out of the shaman.

The supposed "evolution" of society from a maternal to a paternal stage noticed incidentally has no better foundation than the two theories already considered. The fact is that some tribes are organized on a maternal basis, some on a paternal basis, while a very large number, and of these many which on other grounds would ordinarily be considered the lowest, are properly neither the one nor the other but partake of both. Nor is there the slightest reason, beyond subservience to a widespread and popular theory, for supposing that the last have altered from any other condition.

It is to be feared that there has been a too great tendency among some anthropologists to segregate the phenomena presented by lower races and pick out certain elements as "primitive" for no better reason than because they do not occur or have been largely suppressed in our present so called "higher" culture. We thus assume our own culture as an infallible standard of comparison and everything outside as "primitive" in proportion as it diverges therefrom. It is much the same as if we were to assume that because the brain appears to be the seat of intelligence the growth of an individual had begun with the bones. For such phenomena as magic and belief in zoic or anthropomorphic beings do not show themselves successively, but are altogether contemporaneous, and if the above method of reasoning were followed, it would be possible, by a judicious selection of phenomena, to prove anything. The same may be said of the evolution of the kingship and of society in general.

JOHN R. SWANTON.

The Secret of the Totem. BY ANDREW LANG. London: Longmans, Green & Co. 1905. 12°, 225 pp.

In spite of the noted contributions of Mr Lewis H. Morgan and other Americans to the question of the evolution of human society, this subject has always been much more vigorously discussed in England than

on this side of the Atlantic. But while the works of many English students, such as Spencer and Gillen, Howitt, Fison, and Haddon, certainly contain priceless scientific contributions to the study, apparently additional data have not served to set many of the ultimate questions at rest, and in fact we seem to have a different theory for every new investigator. The book before us is that of a special pleader for one such theory, and he proceeds, as might be expected, by first discussing and refuting opposing theories and then stating his own opinions and his reasons for considering them as involving the true explanation.

The opposing theories referred to are epitomized as follows on pages 31 and 32:

"(a) Members of certain recognized human groups already married habitually out of their group into other groups, *before* the animal names (now totem names) were given to the groups. The names came later and merely marked, at first, and then sanctioned, the limits within which marriage had already been forbidden while the groups were still nameless.

"Or (b) the animal names of the phratries and totem kins existed (perhaps as denoting groups which worked magic for the behoof of each animal) *before* marriage was forbidden within their limits. Later, for some reason, prohibitions were enacted.

"Or (c) at one time there were no marriage regulations at all, but these arose when, apparently for some religious reason, a hitherto undivided communal horde split into two sections, each of which revered a different name-giving animal as their 'god' (totem), claimed descent from it, and out of respect to their 'god,' did not marry any of those who professed its faith, and were called by its name, but always married persons of *another* name and 'god.'

"Or (d) men were at first in groups, intermarrying within the group. These groups received names from animals and other objects, because individual men adopted animal 'familiar,' as Bear, Elk, Duck, Potato, Pine-tree. The sisters of the men next adopted these animal or vegetable 'familiars,' or protective creatures, from their brothers, and bequeathed them, by female descent, to their children. These children became groups bearing such names as Bear, Potato, Duck, and so on. These groups made treaties of marriage with each other, for political reasons of acquiring strength by union. The treaties declared that Duck should never marry Duck, but always Elk, and *vice versa*. This was exogamy, instituted for political purposes, to use the word 'political' proleptically.

"Or (e) men were at first in a promiscuous incestuous horde, but, perceiving the evils of this condition (whatever these evils might be taken to be), they divided it into two halves [*sic*], of which one must never marry within itself, but always in the other. To these divisions animal names were given;

they are the phratries. They threw off colonies, or accepted other groups, which took new animal names, and are now the totem kins.

"Finally, in (*f*) conjectures (*a*) and (*c*) may be combined thus: groups of men, still nameless as groups, had for certain reasons the habit of not marrying within themselves, but, after receiving animal names, they developed an idea that the animal of each group was its kinsman, and that, for a certain superstitious reason, it was even more wrong than it had been before, to marry 'within the blood' of the animal, as, for Emu to marry Emu. Or (*f*2) the small groups did marry within themselves till, after receiving animal names, they evolved the superstition that such marriage was a sin against the animals, and so become exogamous."

This last theory (*f*1 and *f*2) is Mr Lang's; (*b*) was suggested by Prof. Baldwin Spencer and Mr J. G. Frazer, and is accepted by Mr Howitt; (*c*) is that of Dr Durkheim; (*d*) is that of Mr Hill-Tout, while (*e*) is that formerly held by Mr Howitt.

It would, of course, be entirely impossible to follow Mr Lang in his discussion of the rival hypotheses without reproducing a large part of his work, but since he assumes so largely the character of a critic he will hardly deem it unfair if we treat his own theory in the same critical manner.

In the first place we may say that we are pleased and refreshed to find an English sociologist cutting free from the erstwhile popular notion of an undifferentiated primitive horde with promiscuous intercourse between the sexes out of which comes a matrimonial cosmos via the tortuous path of group marriage, polyandry, polygamy, etc. In his abandonment of all this and his advocacy of numbers of small local groups as the primitive state of society Mr Lang is much to be commended.

He is not so happy, however, when he attempts to account for exogamy among those groups. In adopting Darwin's suggestion that they have arisen from the custom among male anthropoid apes of fighting for supremacy in each band and killing or driving off the vanquished, he appears to be treading on very thin ice. Certainly we do not know of any human form of society in which a custom at all like this obtains, nor is it easy to see how a jealousy contest could pass over so readily into a voluntary custom. If a tendency to marry out of the group is inherited, why not a tendency to fight all the other males within it before doing so? Why do not the males in the group regard each other as mortal enemies? Far from this being the case, the males in a clan or band such as is supposed to be evolved in this manner, consider each other as "friends" and in time of trouble stand or fall together.

Furthermore, this special theory, and indeed Mr Lang's entire hypothesis, rests on the assumption that the maternal form of social organization is everywhere prior to the paternal. As he does this largely for the reason that no English ethnologists, when the major part of this book was written, admitted a contrary opinion, not so much fault can be found with him personally. It might be well to inform him, however, that, if we are to understand by a maternal system the clan systems of southeastern Australia and of America, the position is one from which American students of the younger generation will certainly dissent. The reviewer has taken this subject up in a brief contribution to the *American Anthropologist* and hopes to elaborate the evidence later. Suffice it to say (1) that the maternally organized tribes in that portion of North America embraced in the United States and the British territories are precisely those which are in other particulars most advanced, and (2) that areas occupied by maternally organized tribes appear to have been gaining on the others previous to white contact. Does either of these circumstances argue anything "primitive" in the maternally organized clan?

Another noteworthy point and one which will strike American students of Indian society with astonishment, is Mr Lang's apparent inability to understand the method of inheriting property under a clan system with female descent. He thinks, it appears, that there is no proof that a man conveys his badge to his sister's children. This statement will certainly amuse anyone who has studied the tribes of the north Pacific coast for a single month—I might almost say for a single week. A badge, name, or any mark of distinction obtained by any male among the Haida, Tlingit, and Tsimshian, for example, passes to his sister's son and is, or may be, continued on in this manner indefinitely. The contrary can hardly be maintained without accusing every anthropologist who has worked in this area of falsifying the facts.

American views of the origin of totemism, instead of being embodied in the main part of the work, are treated in an appendix in which Mr Hill-Tout appears as the principal American champion.

We believe that many of the difficulties which Mr Lang and Mr Hill-Tout experience in arguing together are due to the fact that each is attempting to explain the origin of social institutions everywhere by reference to a specific region. Of this offense the English school of sociologists must be held especially culpable, for they have been the earliest and longest offenders. Had they devoted their energies to a solution of the origin of totemism among Australian tribes, using mater-

ial from other parts of the world simply as suggestions, much more good might have been accomplished, and American students could take little exception to their work. But when the thesis is set up, as it seems to be by the above writer, that in determining the social evolution of a few tribes in southeastern Australia the question of social evolution all over the world has been put at rest, Mr Hill-Tout or any other sociologist has the right to call a halt. While not attempting to support the latter gentleman in all his contentions, which have resulted, however, from most praiseworthy investigations among the Salish tribes of British Columbia, the following points may decidedly be affirmed: (1) There is every evidence that the crests of the Haida, Tlingit, Tsimshian, and Heiltsuk originated from chiefs who transmitted them to their nephews, and proof nearly absolute that some of them were so obtained. (2) While it is not always certain that these crests came from personal manitus, the method by which most of them are said to have been acquired is identical with the method of acquirement of the personal manitu. (3) Though these crests may be said to be distinct from totems, in some tribes, notably the Tlingit, their manner of occurrence resembles in a remarkable manner the occurrence of totems. The fact that totems are found where the personal manitu is wanting need not trouble us, for the personal manitu in its typical form is also wanting among tribes on the north Pacific coast. Some having become hereditary may have tended to extinguish the use of others.

Phratry names in this area originated in an antiquity too remote for us now to penetrate, and by the people themselves they are carried back to the beginning of all things. It may be interesting for Mr Lang to know, however, that the Raven crest among the Haida is on the Eagle side instead of the Raven, and, if it is to be accepted as a totem, hardly fits into his hypothesis according to which the phratry should be found named after an animal which is a totem on the same side.

Finally Mr Lang maintains that totemic names were originally nicknames, or names of a similar character, originally applied by outsiders and ultimately adopted by the clan itself. On this point the evidence from American tribes is again rather unfavorable. The bands of which many tribes are composed bear local names or names recording some real or supposed event in their history, or perhaps some supposed characteristic of the people. Many of these last resemble nicknames, though usually not such as attach any slight to the persons upon whom they are bestowed. Now, a few of these are names of animals or refer to animals, and we are not to exclude the possibility that bands possessing such may have evolved

into clans and the nickname into a totem. This, however, is not certainly known to have occurred. In the few cases where tribes appear to be in process of becoming totemic it is unfortunate that no nicknames involving animals appear. In all such cases a local designation is used side by side with a characteristic totem or crest which seems to be in process of replacing it, and this latter is evidently already religious in character, connected with the animistic views of nature common to all our primitive tribes.

It is unfortunate that Mr Lang had been unable to use more information from American sources. Undoubtedly we have employed terms on this side of the Atlantic with greatly varying significance, and this is often deplorable. Our failure to use a hard and fast terminology, however, is due largely to the fact that we do not find the hard and fast divisions which English theorists postulate. But even allowing for these troublesome terminologies we cannot believe that the descriptions accompanying them would have left Mr Lang altogether in doubt regarding some of the social phenomena which present themselves here. There is sufficient material in print, for instance, to set him right regarding inheritance of property in a maternal stage of society, and other bits of information to be gleaned here and there—such as a total absence of clans in half the continent of North America and their presence in the most advanced tribes—which we would cordially commend to him.

JOHN R. SWANTON.

The Nabaloi Dialect. By OTTO SCHEERER. *Department of the Interior. Ethnological Survey Publications.* Vol. II, part 2. Manila: Bureau of Public Printing, 1905. Pages 83-178; pl. 61-85; 6 figures.

This work, together with an account of the Bataks of the island of Palawan, by Edward T. Miller, completes Volume II of the Publications of the Ethnological Survey for the Philippine Islands. It is welcomed by everyone interested in Philippine anthropology as an important contribution to our knowledge of the primitive tribes of the archipelago, and by students of comparative philology as an interesting addition to our knowledge of the Malayan dialects of the Philippines.

Mr Scheerer was requested to make a complete study of the Ibaloi people of northern Luzon; but circumstances permitted him to perform only a part of the task assigned him—a single chapter of general information relating to the people, in addition to twenty-nine schedules, which were designed to include an extensive vocabulary of their dialect. He prepared a paper, while in Japan, on the Nabaloi dialect, giving an account of the pronunciation, together with lists of the parts of speech,

tables of verbs, short phrases illustrating the syntax of the language, examples of the idiom as illustrated by dialogues, and also a few notes on Nabaloi songs and music. These notes were edited by Dr Merton L. Miller of the Ethnological Survey, and were revised by the author, who added to them a translation of an account of an expedition made against the Ibaloi by Spanish troops in the year 1829.

The illustrations of the work are from excellent photographs by the Honorable Dean C. Worcester, who requested Mr Scheerer to write the paper. They consist of landscapes illustrating the physical features and agriculture of the country inhabited by the tribe, their dwellings, baskets, musical instruments, tools and household utensils, and portraits of the people performing their daily tasks. There is also a sketch-map showing the location of the territory in which they live.

The tribe discussed is not known by a special name. The people composing it have been designated as Igorotes of Benguet, or Benguetanos, to distinguish them from the Igorotes of Tinglayan, Bontok, and other provinces. The name Igorot, or Igot, was used originally by the Tagalogs to designate the mountain tribes of Malayan origin of northern Luzon. It did not include the Negritos. Its derivation is from the Tagalo *golot*, 'sierra,' 'mountain chain'; *i-golot* signifying literally 'mountaineer,' or 'one who dwells in the sierra.' The people themselves make use of this name only in speaking to strangers, in distinguishing themselves from the civilized or Christian tribes. To distinguish themselves from the neighboring mountain tribes they call themselves Ibaloi, and their language the Baloi, or Nabaloi. Their home is in northern Luzon, surrounding Baguio, the present capital of the province of Benguet. The number of individuals composing their tribe is between 12,000 and 15,000. Rumors as to Chinese intrusions among them and of Chinese influence on their language are silenced by the author, who shows conclusively that the language spoken by them is purely Malayan. Although having certain peculiarities of pronunciation and idiom, it must be classed with the other dialects of the Malayan tribes of the archipelago, the principal of which are the Tagalo, the Bisayan, the Pampango, and the Ilocano. Mr Scheerer considers the dialect to be composed of three elements — Pangasinan, Ilocano, and "a third which may be genuine Nabaloi or which will more probably dissolve itself again upon further examination into various components." Pangasinan and Ilocano words which have been incorporated into the dialect have become modified according to the pronunciation of the tribe, who have a tendency to change initial *d* into *ch*, *l* and *r* into *d*, and to precede the sound of *ua* or *oa* (like the English *wa*) by *g*, thus converting *darayan* (banana) into

charayan; *Manila* into *Manida*; *lupa* (face) into *dupa*; and *oala* or *uala* into *guara*. Another tendency is to precede the sound of *y* by *d*, giving to it very much the sound of the English *j*, as in the word *kabadyo* (horse) from the Spanish *caballo*. These peculiarities are of very great interest to the reviewer, since they are also characteristic of the Chamorro language of Guam. Words transformed from their common Malayan form to accord with the genius of the Nabaloi dialect in some cases becomes identical with corresponding words in the language of the Chamorros, as in the case of *chalan* (road) and *uchan* (rain). To express the guttural sound of the German *ch* the author uses the letter *x*, so that the Malayan *laki* (male), which becomes in the languages of Guam and Madagascar *lahi* or *lahy*, and in the Nabaloi *dahhi*, is written "*daxi*."

As in all languages of this family there is confusion between certain vowel sounds. It is often difficult to determine whether a certain sound should be represented by the letter *u* or by *o*, or whether by *i* or *e*; and as different authors are apt to select different vowels for expressing the same sound, greater discrepancies appear in parallel vocabularies of the various dialects compiled by different writers than would be the case if they were reduced to a common phonetic system; just as the use of *x* for the guttural sound causes an apparent difference between a word in which it is used and a word of the same pronunciation in which the sound is indicated by the Spanish *j* or the German *ch*.

An examination of the lists of words presented by Mr Scheerer determines at once the relationship of the Nabaloi dialect. Such primitive words as *dangit* (sky), *bato* (stone), *chalan* (road), *apui* (fire), *asok* (smoke), *asin* (salt), *dima* (hand), *tangida* (ear), *mata* (eye), *susu* (breast), *mimi* (urine), *kuto* (louse), would be recognized at once by Polynesians as well as by Malaysians and natives of Madagascar as similar to corresponding words in their own languages. Other features common to all these languages is the practical identity of the personal pronouns, even to the two forms, inclusive and exclusive, of the plural of the first person; the identity of the numeral system, which is decimal, and even of the names of the numbers; the formation of demonstrative pronouns from adverbs of place ('here,' 'there,' 'yonder'); the absence of a copulative verb 'to be' and the use, instead of predicative nouns and adjectives, of denominative verbs, such as 'to-be-good,' 'to-be-a-friend'; and, lastly, similar peculiarities of certain idioms, such as the expressions 'who is your name?' instead of 'what is your name?' and 'what was his saying?' instead of 'what did he say?'

Other features of the dialect as presented by Mr Scheerer separate it at once from the Polynesian sub-family of the languages and group it

with the other Malayan dialects of the Philippines, the language of Madagascar, and the Chamorro language of Guam. The most striking of these similarities is the use of particles combined with primitive words or roots to form derivatives of various shades of meaning, not only in the form of prefixes and suffixes, as in the English words 'beloved' and 'lovableness,' but as infixes into the body of the primitive word itself. Thus by inserting the particle *in* into the word *bulan* (moon) before the tonic vowel, we form *binudan* (monthly); and in the same way from *kalbig* (strike) we form *kinalbig-mo* (literally, 'your-striking'), you struck. Another distinguishing peculiarity is the use of possessive suffixes in place of separate possessive pronouns; as, *taad-ko*, knife-mine; *balei-mo*, house-thine; *kabadyo-to*, horse-his; *chalan-tayo*, road-ours (yours and mine); *abong-me*, hut-ours (theirs and mine); *ama-dyo*, father-yours; *asu-cha*, dog-theirs. These possessive suffixes are used not only with nouns, but with certain forms of the verb as well. They are common to all the languages of the sub-family, including the Chamorro, Malagasy, and Philippine languages, and are also found in certain languages of the Melanesian and Micronesian islands, and in the endings of the Polynesian pronouns; as *ta-ku*, or *to-ku* (New Zealand), my; *ta-na*, or *to-na* (New Zealand), his, in which *to* and *ta* may be considered as particles signifying ownership or belonging, followed by the possessive suffix, just as in the Chamorro the independent possessives *iyo-ko*, my belonging (used with names of inanimate objects), and *ga-ko*, my belonging (used with animals) occurs, and in the same manner *iyo-mo*, *ga-mo*, thy belonging; and *iyo-ña*, *ga-ña*, his belonging.

Among the derivative words which are characteristic of the Philippine sub-family are those formed by adding the particle *an* to the root and signifying locality, or the place of an action. Thus, from *tungau*, sit, we form *tungau-an*, sitting-place, or seat; from *inum*, drink, *inum-an*, drinking-place, or spring; and from the Spanish *escuela*, school, *eskueda-an*, school-house, or school-place. When an action is implied, the derived noun also takes a verbal prefix *pan* or *pang* (corresponding to the Chamorro particle *fan*, which is used in the same way); as, *pang-ala-an*, getting-place, in the sentence *Twai i pang-ala-an-mo ni kiu i*, 'Which (was) the getting-place-yours of the wood?' that is, 'Where did you get the wood?'

Only a few more features of the Nabaloi need here be mentioned to further illustrate its relationship to other members of its sub-family. Instead of an indefinite article it uses the numeral *saxei* (one). The definite article, *e*, or *i*, is identical with that of the Chamorro, and like the Chamorro and the Philippine languages it possesses a personal article

si, which is used before the names of persons and of relationship. Its use in the Nabaloi is carried farther than in many kindred dialects, however, since it takes the form of a prefix to personal pronouns, as *sikak*, from *ak* (I); *sikam*, from *ka* (thou); *sikato*, from *to* (he). It is probably identical also with the prefix to the interrogative pronoun *sipai*, who. The verb *guara*, 'there is' or 'is there' (Fr. *il y a*, or *y a-t-il*), is identical with the Chamorro *guaha*, and is used exactly in the same way; as, *guara chanum*, 'is there water?' (Chamorro, *guaha hanum?*). And it is also used to express ownership in the absence of a verb 'to have'; which may be likened to the expression 'there-is belonging-to-me a cow,' for 'I have a cow.' In the negative *anchi*, 'there is not,' the last syllable *chi* is without doubt to be identified with the Chamorro negative *ti* (not) and the Madagascar *tsi*, which occurs in the Bontok dialect as *di* and the Tagalo as *di*. It is interesting to find in the Tagalo that the sense of *guara* (which takes the form *uala*) is reversed, signifying 'there is not,' instead of 'there is' — a change from the original meaning, perhaps, after the manner of the French *jamais*, 'ever,' which when used alone signifies 'never.' The use of a ligation, or connecting particle, though not so frequent as in the Tagalo and Chamorro, is found in the examples furnished by Mr Scheerer; thus we have *saxei a too*, one person; *añak a kurab*, blind child; *iman a balei*, that house; *achaxel a too*, many people, in which *a* may be regarded as a ligation connecting the adjective with the noun.

In the Nabaloi preposition *chi* (at, in, on) may be recognized the Chamorro *gi*; as in the phrases *chi chanum* (Chamorro *gi hanum*), 'in the water'; *chi chalan* (Chamorro *gi chalan*), 'on the road'; *chi balei* (Chamorro *gi gima*), 'at or in the house.' This preposition is without doubt identical with the *ki* of Tonga and New Zealand, which in Samoan and Hawaiian becomes *i*. It is the Malayan *di* and is used as in the Malayan for forming compound adverbs and prepositions; as *chi inaitapou*, 'on top,' 'upon' (Chamorro, *gi hilo*; New Zealand, *ki runga*; Samoan, *i luga*; Hawaiian, *i luna*; Malayan, *di atas*); *chi inaidiung*, 'below,' 'underneath,' 'on the lower side'; *chi pinaidaem*, 'within,' 'on the inside'; *chi inaidingeb*, 'behind,' 'in the rear.' Combined with the demonstratives *iai* (this), *itan* (that), *iman* (yon), this preposition forms the adverbs of place *chiai* (here), *chitan* (there), *chiman* (yonder).

The examples of verbs do not show the use of reduplication of syllables to express tense or duration of time, which is so characteristic a feature of the Chamorro and Tagalo. Other features of the verb, however, indicate that it is used very much as in other dialects of the Philippines. Such are the presence of a causative particle, the use of distinct

forms of the verb in cases where the subject is the principal idea to be conveyed and where the object is to be emphasized; and a difference also in the form of the verb if it has a definite object or an indefinite or vague object.

An understanding of the use of the verbal forms is aided much by Mr Scheerer's examples; but it must be admitted that these would not afford an adequate introduction to the intricacies of the subject unless one were familiar with the grammar of Tagalog or other Philippine dialects. In studying a language of this kind one is always to be grateful for as many simple, concise sentences as possible as illustrations of its grammatical features. Such sentences should be gleaned from natives themselves and rendered literally with a verbatim translation, if possible. Tabular forms suggest artificial constructions. The author labored under the great disadvantage of having to prepare his work for publication in Japan, far remote from the people of whose language he writes, and with no subsequent opportunity to verify doubtful points which must have arisen.

Mr Scheerer, in concluding the introduction to his very interesting and valuable paper, calls attention to differences in the dialects of neighboring communities, which must necessarily cause discrepancies between vocabularies compiled by different authors. To him belongs the credit of being the first to introduce the Nabaloi dialect to writing, though he modestly protests that he has cut only a narrow trail through the jungle of the hitherto unexplored territory, which he hopes will be the means of facilitating further investigation.

WILLIAM E. SAFFORD.

The Aboriginal Pipes of Wisconsin. By GEORGE A. WEST. (*Wisconsin Archaeologist*, published by the Wisconsin Archaeological Society, vol. IV, nos. 3, 4, Milwaukee, April-August, 1905.)

This monograph will be welcomed by all American archeologists as a valuable addition to our present knowledge of the distribution of Indian pipes in the United States. The specimens illustrated, of which there are more than two hundred, comprise both historic and prehistoric examples. Metal tomahawk pipes of every known type are represented, and those of metal of the trade type are shown to be quite numerous, as are the Sioux type of stone pipes, many of which are inlaid with lead. The known area of the Micmac or "keel-base pipes" is shown to extend throughout Wisconsin, and the same may be said of the disk pipe. The author illustrates a number of specimens of what he designates "handle pipes," apparently a type distinct from any pipe heretofore described. These are provided with a distinct handle extending below the bowl, and are apparently so made as to protect the hand from the heat of the burning tobacco.

J. D. MCGUIRE.

PERIODICAL LITERATURE

CONDUCTED BY DR ALEXANDER F. CHAMBERLAIN

[NOTE.—Authors, especially those whose articles appear in journals and other serials not entirely devoted to anthropology, will greatly aid this department of the *American Anthropologist* by sending direct to Dr A. F. Chamberlain, Clark University, Worcester, Massachusetts, U. S. A., reprints or copies of such studies as they may desire to have noticed in these pages. — EDITOR.]

GENERAL

Balfour (H.) Presidential address. (Rep. Brit. Ass. Adv. Sci., Lond., 1904 [1905], LXXIV, 689-700.) Treats of the evolutionary studies of Col. Lane Fox in the material arts of man, the comparative study of the musical instruments of modern savage and barbaric peoples, the phylogenetic history of the products of human industry, the ethnologic study of primitive races, — "most savage races are in a large measure strictly primitive" (e. g. Tasmanians).

Barton (W. J.) The distribution of rural occupations. (Geogr. Teacher, Lond., 1905, III, 28-31, map.) Abstracted from Hahn's *Die Haustierte* (Leipzig, 1896).

Bérillon (E.) Les femmes à barbe. (R. de l'Hyp., Paris, 1905, XIX, 195-203; 1905, XX, 2-11, 35-46, 68-78, 99-108; 134-142, 167-176, 198-209, many figs.) Continues and ends an interesting psychological and sociological study of bearded women, ancient and modern, real and in art and imagination. Heredity in the matter of "bearded women" seems to come from the father. Dr B. is inclined, with Brandt, to consider the bearded woman prophetic. — France, "the most advanced in many aspects of evolutions," — leads; here slightly hirsute women of this type are rather common. Psychology and education will, however, prevent any character-change in woman being induced by her "beard."

Carus (P.) Image worship. (Open Ct., Chicago, 1905, XIX, 21-25.) C. states that the early Christians were iconoclasts and "the whole Christian symbology is due to pagan influence and pagan traditions." Curious is the worship of "black Marys," — their images are still found in Latin Europe, etc.

— Pagan Christs. (Ibid., 92-99.) Based on J. M. Robertson's *Pagan Christs* (Lond., 1903). Refers to the Mithraic eucharist, the religious cannibalism of the ancient Mexicans, the Penitentes of New Mexico and their passion play.

— Professor Mills, the Zendavesta scholar. (Ibid., 505-509, portr.) Sketch of life and activities of L. H. Mills, professor of Zend philology in the University of Oxford, and Zoroastrian scholar.

— The reality of the devil. (Ibid., 717-736, 11 figs.) The illustrations are of ethnic interest.

Froideveaux (H.) L'histoire géographique et l'histoire coloniale au Congrès de Stuttgart. (J. Soc. d. Amér. de Paris, 1905, N. S., II, 325-329.) Résumés papers on geographical and colonial history read at the Fourteenth International Congress of Americanists at Stuttgart, 1904.

van Gennep (A.) Notes sur l'héraldisation de la marque de propriété et les origines du blason. (Bull. Soc. d'Anthr. de Paris, 1905, V^e s., VI, 103-112, 23 figs.) Discusses the heraldization of property-marks. The *Hausemarke* and *Hofmarke* (German), the Russian *kleino*, Turco-Egyptian *tanga*, Arabic *waim*, Japanese *shirushi*, etc., are considered. The *blason* is of polygenetic origin. Property-marks develop, with social classes, into armorial bearing and heraldic blazonry.

Guyot (T.) La population et les subsistances. (Ibid., 167-182.) Treats of the "ideal ration," vegetable ration in France, meat ration in France and England, the world's meat food, relations of population and food. The author

concludes that the production of grain and meat in the world is inferior to the necessary ration as determined by the physiologists, and that many who need a reparative nutrition have to put up with an insufficient one.

Hellwig (A.) Aberglaube und Strafrecht. (Unterhiltgabel. x. Tagl. Rdschau., Berlin, 1905, Nr. 220, 877-879.) Discusses briefly "superstitious crimes," such as injury to property or objects of various sorts (animals, trees, etc.), done with a view to transfer or get rid of disease or the like; injuries to the body or its organs, "to drive out the devil," to cure diseases, etc.; killing a man to obtain his blood or some other part of him for "curative" purposes; mutilation of corpses through "vampire-beliefs"; the *main de gloire*. Perjury also stands in a peculiar relation to superstition.

— Umfrage über kriminelle Aberglauben. (Z. f. d. ges. Strafrechtsw. Berlin, 1905-6, XXVI, 335-338.) Contains questionnaire of 13 items relating to superstitions of and about criminals and crime. The subject of superstition and crime has also been treated by Löwentin, in the *Zeitschrift f. Sozialwissenschaft* (1903, 209-231, 273-286) and in his *Aberglaube und Strafrecht* (Berlin, 1897).

Hutchinson (W.) The weapons and tools of the dog. (Open Cl., Chicago, 1905, XIX, 205-226, 15 figs.) Author argues that "the main thing a dog is built for is to carry about and 'backup' his teeth," but it is the dog's great-great-grandfather, the wolf, who can do really artistic things with his teeth. The different breeds of dogs "have had their original wolf set of teeth modified by the way in which they have been selected and bred for a particular 'trade.'"

Jörger (J.) Die Familie Zero. (A. f. Rassen- u. Ges.-Biol., Berlin, 1905, II, 494-559.) This interesting and valuable monograph, with many tables, treats of the family of the Zeros, — the remote ancestor was a mill-owner in 1639, — and their product in individuals afflicted with vagabondism, alcoholism, crime, immorality, mental diseases, pauperism. The tendency to vagabondism is said to be due to marriage with "foreign" women. The paternal character was destroyed by unions of German mountaineers and Italian tinkers and "homeless" people. A vocabulary of the language (German

dialect) still used by the Zeros is appended.

Kahle (B.) Dergefesselte Riese. (A. f. Religsw., Lpzg., 1905, VIII, 314-316.) Treats of the idea of the "chained giant" in the mythology of certain peoples of the Caucasus. Résumés Anholm's *Den bundne Jätte i Kaukasus* in the *Danska Studier* for 1904.

Keller (C.) Die Mutations-theorie von de Vries im Lichte der Haustier-Geschichte. (A. f. Rassen- u. Ges.-Biol., Berlin, 1905, II, 1-19.) K. argues that there is no sharp boundary between natural and artificial selection, the latter being only a specially developed type of the former. As a rule the domestication of animals has taken place by the accumulation of small variations (Darwin), and only quite exceptionally by means of striking mutations (de Vries). Things in free nature occur in about the same way as in man's "artificial" selection. K. cites, e. g., the history of the East African *Acacia fistula*, hermit crab, the sheep, cattle, dog, etc.

Kollman (J.) Ueber Rassegehirne. (Z. f. Ethnol., Berlin, 1905, XXXVII, 601-602.) Note on the investigation of four Fuegian brains by Jacob (see *American Anthropologist*, 1905, N. S., VII, 562). Dr K. observes that the results of Dr Jakob agree with those of Seitz and Manouvrier, affording additional evidence that "all nations, termed to-day civilized, exhibit and have exhibited for 2,000 years, the same quality of brain as the Fuegians."

— Ueber Rassegehirne. II. (Ibid. 758-759.) Note on recent description of the brain of a Papuan from the south coast of Dutch New Guinea by Bolk in *Petrus Kamper*.

Kuhlenbeck (L.) Zur Kritik des Rassenproblems. (A. f. Rassen- u. Ges.-Biol., Berlin, 1905, II, 560-567.) Critique of recent article by Dr L. Stein in *Die Zukunft*.

Lejeune (C.) La place de l'homme dans l'univers et dans la série zoologique. (Bull. Soc. d'Anthr. de Paris, 1905, V^e s., VI, 183-194.) Résumés and discusses the arguments of A. R. Wallace's *Man's Place in the Universe* and M. René Quinton's *L'Eau de mer, Milieu organique*, the first of which seeks to elevate the position of man in the universe by making earth its center, the latter to lower it, by making him not the last and highest member of the zoological series, but a species that appeared before the

carnivora and the ungulates. The birds according to M. Quinton are posterior and organically superior to the mammals.

Lissauer (A.) Ueber den ersten Internationalen Archäologen-Kongress in Athen von 7-13. April 1905. (Z. f. Ethnol., Berlin, 1905, XXXVII, 537-546.) Résumés papers, etc., particularly that of Dörpfeld on cremation and burial of the dead in ancient Greece (cremation and then burial was the custom from prehistoric times to the Christian era; Homeric literature belongs to the younger Mycenaean epoch), and others by Evans, Montelius, etc.

Manouvrier (L.) L'Anthropologie à l'Exposition de Saint-Louis (U. S. A.) en 1904. (R. de l'Éc. d'Anth. de Paris, 1905, XV, 231-256.) Brief account of anthropology at the St. Louis Exposition—exhibit of Bureau of American Ethnology, Section of Physical Anthropology and Laboratory, Indian Schools exhibition, Congress of Arts and Sciences, etc.

Meinert (H.) Isocephalie und Degeneration. (A. f. Rassen- u. Ges.-Biol., Berlin, 1905, II, 76-85.) Argues against the views of Waldenburg (in his dissertation on *Das isocephale Rassen element unter Halligfriesen und jüdischen Taubstummen*) that the presence of a high degree of shortheadedness (hyperbrachycephaly and isocephaly) in modern blonds is a sign of degeneration, and that deaf-mutism and mental diseases stand in a certain relation thereto. Statistics do not bear out W.'s opinion.

Montelius (O.) The evolution of the lotus ornament. (Rep. Brit. Ass. Adv. Sci., Lond., 1904 [1905], LXXIV, 700.) Brief notes on lotus ornament in Egypt, Assyria, Cyprus, Greece. In Greece lotus becomes common only in first millennium B. C., although known in Mycenaean times. The palmette and "Ionian capital" go back to the lotus.

Newell (W. W.) In Memoriam: Washington Matthews. (J. Amer. Folk-Lore, Boston, 1905, XVIII, 245-247.) Brief account of life, 1843-1905, and scientific activities, publications, etc., personal character. Dr M. "was poet as well as artist." A biography by C. F. Lummis is in preparation.

Northup (C. S.) A bibliography of comparative literature. (Mod. Lang. Notes, Balt., 1905, XX, 235-239.) Critical review, with corrections and numerous additions, of Baldensperger's new edition

(Strassburg, 1904) of Betz's *La littérature comparée: essai bibliographique*.

Peet (S. D.) The story of the temptation, or the contest between good and evil. (Amer. Antiq., Chicago, 1905, XXVII, 139-152, 8 figs.) Treats this theme as represented in the Hebrew scriptures, the Orient, America (Iroquois, Aztecs, Mayas, etc.).

— The story of the deluge. (Ibid., 201-216, 5 figs.) Refers to deluge legends of ancient Semites, Greeks, Chinese, Hindus, American Indians (Algonquians, Navahos, Aztecs, etc.) The views of Prof. Suess are reported at some length.

— Ancient alphabets and sacred books (Ibid., 265-280, 8 figs.) Treats of cuneiform writing, Egyptian hieroglyphics, the alphabet and history, etc.

— Spear-heads, knives, stone axes, and other edged tools. (Ibid., 297-304, 3 pl., 1 fig.) General discussion of flint implements, grooved axes, etc.

— The boomerang and the bow and arrow. (Ibid., 233-250, 2 pl. 6 figs.) Discusses generally the bow and arrow, the harpoon, with references to Tylor, Holmes, Mason.

Prinzing (F.) Die kleinere Sterblichkeit des weiblichen Geschlechts in den Kulturstaaten und ihre Ursachen. (A. f. Rassen- u. Ges.-Biol., Berlin, 1905, II, 253-266, 369-382.) The proportion of women to 1000 men in the various European states ranges from 893 in Bosnia to 1090 in Portugal, averaging 1025. The female mortality is in almost all these countries lower than the male. The smaller mortality is conditioned by the smaller dangers to the life of woman during the period 15-40 years and in old age. In the period 5-15 years tuberculosis raises the death-rate and in the period 15-20 years the effects of civilization are perceptible.

Reinach (S.) Le serpent et la femme. (L'Anthropologie, Paris, 1905, XVI, 178-180.) Author seeks to explain the "enmity between the serpent and the woman" (Gen. iii) by reference to the belief current in various regions of the primitive world (and recently reported from Portugal) that the menstrual flow is the result of the bite of a serpent. The *heel* of the Biblical narrative is euphemistic.

Sastri (K. S. R.) Shakespeare and the Indian drama. (Educ. Rev., Madras, 1905, XI, 388-402.) Treats of develop-

ment of Hindu drama in comparison with Greek and Shakespearian. Hindus have no tragedy; Hindu "fool" of lower type. Imitation of Shakespeare needed in development of plot, fusion of comic and serious, etc.

Schallmayer (W.) Die soziologische Bedeutung des Nachwuchses der Begabteren und die psychische Vererbung. (A. f. Rassen- u. Ges.-Biol., Berlin, 1905, II, 36-75.) Discusses recent theories and investigations, particularly those of Sombart and Steinmetz concerning the size of the families of the more talented classes of the population, the social significance of their posterity, etc. S. thinks that the noticeable reduced fertility (in the well-to-do and the talented classes) is partly involuntary, — sexual diseases are more hurtful here than with the less talented and less wealthy. Bodily and mental heredity may exist, without, e. g., as Odin points out, genius or talent (i. e., special mental constructions) being inherited.

Sébillot (P.) M. Girard de Rialle. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., VI, 149-150.) Brief sketch of scientific activities of the French ethnographer and folklorist. His brain and skull were left to the Society.

Siffre (A.) Les caractères de la dent carnivore chez l'homme et les anthropoïdes. (R. de l'Éc. d'Anthr. de Paris, 1905, XV, 137-149, 18 figs.) Treats of the origin and nature of the human teeth (man has 8 heterodont groups) in comparison with those of the anthropoids. The differences in the form of the temporary and the permanent organs may represent stages of evolution.

Velde (—) Rachitische Bildung des Schädels. (Z. f. Ethnol., Berlin, 1905, XXXVII, 619-620.) Note on an individual with very marked rachitic skull and other characters.

Virchow (H.) Zwei Photos eines durch Formalin-Alkoholgemisch injizierten Kopfes mit präparierter Gesichtsmuskulatur. (Ibid., 620-622.) Brief description of a head so prepared as to retain the physiognomic minutiae and permit comparison with muscular forms.

— Einen Kopf, der zur Hälfte aus dem Schädels, zur Hälfte aus der Gesichtsmuskel besteht. (Ibid., 781-785, 2 figs.) By median section one half of the face of the head described in previous paper was removed, so that the head at present exhibits the natural outlines of the face

on one side and of the bones on the other. V. points out the advantages of this disposition for the reconstruction of the faces of historical personages from the skull, if preserved, and from paintings, — the inaccuracies of the artist can thus be corrected. Also faces of primitive peoples.

Vorobieff (V. V.) The degenerate ear. Anatomico-anthropological sketch. (J. of Ment. Path., N. Y., 1905, VII, 57-75.) Resumes previous investigations and gives results of own. Bibliography of 30 titles. See *American Anthropologist*, 1902, N. S., IV, 767.

W. (R.) Out of the mouths of babes and sucklings. (Educ. Rev., Madras, 1905, XI, 356-358.) Notes on the language of a boy up to his third year. A few "original words" are noted; also grammatical peculiarities, etc.

Weinberg (R.) Zur Theorie einer anatomischen Rassensystematik. (A. f. Rassen- u. Ges.-Biol., Berlin, 1905, II, 198-214.) Discusses and criticises particularly the systematic attempt of Ivanovski's (see *American Anthropologist*, 1905, N. S., VII, 547) attempt to arrange and classify the data available for a number of anthropological characters of the population of Russia (color of hair and eyes, stature, length of head, cephalic index, height index, facial index, cheekbones index, nasal index, length of face, length of trunk, chest-circumference, arm-length, length of leg). There are objections to the use of the so-called "difference-unity" as a rule of comparison for diverse peoples.

Wood (F. A.) The origin of color-names. (Mod. Lang. Notes, Balt., 1905, XX, 225-229.) Discusses various ways in which color-names arise, — "they are always transferred terms, and, in the old color-names at least, usually come from the restricted use of various descriptive terms," and "the color denoted depends upon association, not upon any inherent meaning in the word itself." The article resums part of the author's *Color-names and their Congeners* (Halle, 1902).

EUROPE

Bandi (E.) Volkstümliche Handwerkskunst und bäuerliche Zierformen. (Schw. A. f. Volksk., Zürich, 1905, IX, 243-250, 3 pl., 2 figs.) Treats of the pottery and stone-ware of the Swiss peasants, their

ornamentation, inscriptions, etc., particularly in Aargau. The crockery of Langnau is the richest in decoration; that of Heimberg is simpler. The new pottery does not compare with the old and the new ornamentation lacks character.

Baudouin (M.) Découverte d'un menhir tombé sous les dunes et d'une station gallo-romaine aux Chaumes de St. Hilaire de Riez, Vendée. (Bull. Soc. d'Anthrop. de Paris, 1905, 1^{re} s., VI, 125-134, 3 figs.) Detailed description of a flat menhir covered with sand at a place called *Creux d'Argent* (legend has it that a treasure is hidden here), its situation, etc. Dr B. considers that this stone is not "an erratic block," conveyed naturally, but a block from the Cenozoic sands, coming from outside of Chaumes.

Bouchet (—) Les sépultures de l'âge du bronze de la grotte de Courchapon, Doubs. (L'Anthropologie, Paris, 1905, XVI, 309-316, 4 figs.) Describes with measurements, 4 crania (indices 68.39, 78.82, 75.70, 77.96) from the grotto of Courchapon, belonging to the end of the bronze age, in the valley of the Ognon, Doubs. The cranial capacity is rather small. Affinity with the dolichocephals of the bronze age in the Rhine valley, southern Germany and Switzerland, is indicated.

Boule (M.) Les grottes des Baousses-Rousses. (Ibid., 503-506.) Notes on the chronology of the Grotto of the Prince, near Mentone, and on the age of the human skeletons from the Mentone grottoes. According to B. the human remains from these caves belong to all periods of the Quaternary—the negroid skeletons go back to the epoch of the oldest Quaternary fauna.

— L'origine des éolithes. (Ibid., 257-267, 15 figs.) B. cites evidence to show how flints identical with so-called "éolithes" may be produced by the simple play of physical forces, as e. g., at Mantes. Some of the éoliths may have received their present form from the processes of their extraction by excavators. B. believes in the existence of Tertiary man; the proof will turn up somewhere some time.

Branger (E.) Verordnungen über das Bad Pfäfers vom Jahr 1603. (Schw. A. f. Volksk., Zürich, 1905, IX, 150-154.) Publishes the regulations of the Pfäfers free bath issued by the Abbot Michael in 1603.

Breuil (H.) Nouvelles figurations du mammoth gravés sur os à propos d'objets d'art découverts à St. Mihiel, Meuse. (R. de l'Éc. d'Anthr. de Paris, 1905, XV, 150-155, 9 figs.) Describes new engravings of the mammoth (or parts) or bones from the "shelter" of Roche-Plate near St. Mihiel. Flints were not numerous (several atypical). Bones and teeth of reindeer, horse, ox, goat (?) were found—those of the deer and larger animals were absent. Harpoons and needles also were lacking. This "shelter" belongs probably to a period earlier than the last epoch of the reindeer age.

— L'âge du bronze dans le bassin de Paris. (L'Anthropologie, Paris, 1905, XVI, 149-171, 11 figs.) Treats of bronze axes from the basin of the river Somme, of which there are recognized four types (flat, straight-edged, "heeled," and winged). The rarest are the flat. The oldest types of metal axes are absent or are exceptional in Picardy.

Busse (—) Das Brandgräberfeld bei Wilhelmsau, Kreis Nieder-Barnim. (Z. f. Ethnol., Berlin, 1905, XXXVII, 569-591, 33 figs.) Describes briefly the contents (weapons, implements and utensils, ornaments, etc., metal objects, etc.) of 55 graves in the cremation-cemetery of Wilhelmsau, investigated 1901-1904. These remains represent a Teutonic people of the third to the fourth century B. C. The pottery is essentially different from that of the La Tène and Hallstatt age. Noteworthy are a *terra nigra* vessel with a relief-frieze and a silver double-roll fibula. See *Kosinna, Lindeur*.

Capitan (L.) Les deux conférences de M. le Dr Capitan, à Bordeaux. Analyse par l'Abbé Brun. (Soc. Arch. de Bordeaux, 1903, XXXIV, 94-108.) Résumé of two addresses by Dr Capitan before the Archeological Society of Bordeaux on "The ethnographic method applied to the study of the drawings and paintings in the prehistoric grottoes of Aquitaine."

Capitan (L.), Breuil (H.), & Peyrony (M.) Figurations du lion et de l'ours des cavernes et du rhinocéros tichorhinus sur les parois des grottes par l'homme de l'époque du renne. (R. de l'Éc. d'Anthr. de Paris, 1905, XV, 237-238.) Brief account of engravings of cave-animals in the grottoes of Font de Gaume and Combarelles; of cave-bear at Combarelles; of rhinoceros tichorhinus at Font de Gaume, etc.

- Cortailhac (E.)** Congrès préhistorique de France. Première session à Périgueux. (*L'Anthropologie*, Paris, 1905, xvi, 507-519.) Brief account of meeting, with résumés of principal papers, etc.
- Cortailhac (E.) et Breuil (H.)** Les peintures et gravures murales des cavernes Pyrénéennes. II. Marsonlas, près Salles-du-Salat, Haute Garonne. (*Ibid.*, 431-444, 10 figs.) Treats of the animal figures (goat, horse, etc.) engraved and painted, tectiform, pectiform signs, arborescent figures, groups of points, cross, etc., on the walls of the cavern of Marsonlas. There are about a dozen rude sketches of human heads. At Marsonlas there are three distinct "pictorial layers," — black animal figures; polychrome animal figures with tectiforms and hands, enigmatic red figures, crosses and branchy bands. One painting with tectiform, arborescent, and punctillated figures is remarkable.
- Cunningham (D.), Gray (J.), et al.** Anthropometric investigation in Great Britain and Ireland. Report of Committee. (*Rep. Brit. Ass. Adv. Sci.*, Lond., 1904 [1905], 330-337.) Outlines scheme for establishment of central anthropometrical bureau (honorary consultative committee, bureau in London, measurers). Appended are brief notes on the pigmentation survey of the school children of Scotland carried out in 1903 by school teachers; Shrubbsall's study of the physical characters of London hospital patients; measurements of the inmates of Scotch lunatic asylums (Tocher); measurements of Aberdeenshire and Glasgow school children (Tocher); measurements of Dorsetshire peasants (Gray).
- Daleau (F.) et Manfras (É.)** Le dolmen du Terrier de Cabut, Commune d'Anglade, Gironde. (*Soc. Arch. de Bordeaux*, 1904, xxv, 84-91 3 pl.) Describes briefly the finds — metal objects (bronze dagger-blade, bronze fragments), objects of bone ("amulet," bone bead, pins, ornaments), limestone beads, necklace of shell beads, and numerous similar shell objects, pottery (resembling ordinary French neolithic), etc., at the dolmen of Terrier de Cabut, assigned to the Morgian epoch.
- Déchelette (J.)** Les perles de verre. (*L'Anthropologie*, Paris, 1905, xvi, 173-177, 2 figs.) Résumés the second part of article by Reinecke on *Glasperlen vorrömischer Zeiten aus Funden nördlich der Alpen*, published in *Altertümer unserer heidnischen Vorzeit* (Mainz, 1904, v, 60-72). Glass-making is of late origin in Europe and the beads discussed by Reinecke are of Mediterranean importation.
- Les petits bronzes ibériques. (*Ibid.*, 29-40, 6 figs.) Discusses some of the material published by M. Pierre, Paris, in his *Essai sur l'Art et l'Industrie de l'Espagne primitive* (Paris, 1903-1904, 2 vols.), — the small bronzes, jewels, implements, and instruments of divers sorts, of Iberic origin (fibulae in particular). D. concludes that the evidence shows that "in proto-historic Spain there was a sort of local school of sculpture, which, while receiving inspiration from Græco-Oriental models, succeeded, in spite of awkward execution, in giving its works certain undeniably original character." In industrial art the prototypes were Upper Italian rather than Greek or Carthaginian.
- Deubner (L.)** O. Basener, *Ludi sæculares*. (A. f. Religsw., Lpzg., 1905, viii, 310-314.) Résumés O. Basener's *Ludi sæculares*. *Dresnyerinskiya ssyekulyarnyya igry* (Warsaw, 1901, pp. cxv, 326), treating of the origin and history of the so-called *ludi sæculares* of the ancient Romans, their relations to the Gentile cult of the Valerii.
- Evans (A. J.)** Excavations at Knossos, Crete, 1904. (*Rep. Brit. Ass. Adv. Sci.*, Lond., 1904 [1905], 322-324.) Reports briefly explorations of floor-levels, etc., within palace area, tracing of Minöan roadway, discovery of cemetery north of palace, and sepulchral chamber farther north. Wall-paintings, great *pithoi*, inscribed clay tablets, painted ware, bronze objects, Egyptian *alabastra*, etc., were found.
- Evans (A. J.), Myers (J. L.), et al.** Excavations on Roman sites in Britain. (*Ibid.*, 337-339.) Describes briefly excavations at Silchester and Caerwent, 1903-1904; detailed accounts will appear in *Archæologia*. At Silchester the remains of the principal bath of the Roman town were discovered; and at Caerwent the south gate and the base of a statue dedicated to Mars (date 152 A. D.).
- Fürtwangler (A.)** Charon. Eine altatlische Malerei. (A. f. Religsw., Lpzg., 1905, viii, 191-202, 2 figs.) Treats of a frieze-painting in black on a clay object unique in form, — not a vessel, since

it has neither bottom nor belly, foot nor handle, properly an *eschara* of old Athenian provenance. The picture is valuable as being a good half-century older than the earliest hitherto known representations of Charon. It would appear also that Charon was a genuine primitive figure in old folk-thought and not the late creation of a poet.

Keller (C.) Le poulpe de l'allée couverte du Lufang, Morbihan. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 239-243, 7 figs.) Describes the figure of the octopus carved on the third support of the left of the covered way of Lufang in Morbihan. This prehistoric figure is compared with representations of the octopus on Mycenaean vessels and other objects.

Kossinna (A.) Ueber das Brandgruben-gräberfeld von Wilhelmshau. (Z. f. Ethnol., Berlin, 1905, xxxvii, 596-599, 5 figs.) Describes some characteristic East Germanic objects (clay vessel, dagger-knife, iron knife, iron key, etc.). Neither the double-roll fibula nor the terra-nigra vessel with frieze is unique. See *Bussé; Lissauer*.

Krause (E.) Ueber die Exkursion der Gesellschaft am 28. Juni nach Rüdersdorf. (Ibid., 783-785, 2 figs.) Describes briefly some urns from the graves near the lake of Steinitz, and excavations made.

— Ueber Mord- und Sühnekreuze. (Ibid., 618-619.) Cites evidence to show that stone-crosses in the highway related to murder and then penance. Some 10 instances are referred to.

Lehmann (W.) Ueber eine lappländische Zaubertrommel. (Ibid., 620.) Note on a drum formerly in possession of Olaus Wormius, and noteworthy as being perfect in all respects.

Lissauer (A.) Ueber die Bedeutung des Gräberfeldes von Wilhelmshau für die Kenntniss des Handelsverkehrs in der Völkerwanderungsperiode. (Ibid., 591-596, 2 figs.) According to L., the remains of Wilhelmshau indicate the extension of West Gallic trade-relations over the Elbe to the Spree, and of East Hungarian over Silesia and Brandenburg northward. The vessel with ornamental frieze dates from (latest) the end of the third century. A distribution-map for bronze kettles and sigillata vessels with relief is appended. See *Bussé; Kossinna*.

— Die Doppelälste der Kupferzeit im westlichen Europa. (Ibid., 519-

525, 2 figs.) Describes briefly 18 copper "double axes" (hole in middle, blade at each end) from various parts of Germany (15), France (2), Switzerland (1). L. considers that these "double axes" were not weapon or implements, but imported axes from the southeast (Cyprus)—in the early metal-age copper bars in the form of "double axes" were brought into western Europe. The adornment of some of them indicates their appreciation.

— Die Doppelälste aus Kupfer von Pyrmont. (Ibid., 770-772, 1 fig.) Describes, with results of chemical analysis, a "double axe" of copper (pure practically) found in 1900 near Pyrmont. L. considers that the analysis confirms the view that these West-European "double axes" belong to the earliest metal bars coming from Cyprus into Europe.

Luchsinger (C.) Das Molkereigerät in den Alpendialekten der romanischen Schweiz. (Schw. A. f. Volksk., Zürich, 1905, ix, 177-186, 251-291, 33 figs.) This excellent monograph, with word-index and bibliography of some 70 titles, treats in general and in particular of the various instruments, implements, and utensils employed in the milk industry; their names (etymology, etc.), etc., in the Alp dialects of Romance Switzerland. Some 30 ideas are expressed by 195 words (150 of different roots, —66 percent Teutonic, 11 percent Latin).

Mahoudeau (P. G.) Documents pour servir à l'ethnologie de la Corse. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 165-184.) Gives results of head-measurements of 354 individuals from various parts of Corsica (mountainous central region, Niolo; region about Corte, etc.). Both brachycephals and dolichocephals are old in Corsica, but the latter were probably the original type, tending toward mesaticephalism. In Corsica, as in France, the Pleistocene man of Cro-Magnon has been transformed into a modern race.

Meier (S.) Volkstümliches aus dem Frei- und Kelleraamt. (Schw. A. f. Volksk., Zürich, 1905, ix, 128-150, 211-223, 306-313, 1 pl., 3 figs.) Concluding sections of monograph. Treats of folk-customs and folk-ideas concerning Lent, Ash Wednesday, shrove-tide, palm-Sunday (boys with palms, "Balme"), Good Friday and the Saturday following, Easter, first and last of April, school-examinations, "months"

Sundays" (first Sundays in month), May reverence, processions and "beating the bounds," etc.

de Maignac (C.) Note sur le Jupiter gaulois à la rose. (Soc. Arch. de Bordeaux, 1905, XXV, 102-110, 1 pl.) Describes and discusses an acephalous stone statuette (Gallo-Roman) discovered at Bordeaux in 1900, and believed to be a Gaulish Jupiter *in rosis*.

Mielke (—) Silbernes Schmuckstück. (Z. f. Ethnol., Berlin, 1905, XXXVII, 536.) Note on an ancient south Slavonian (?) silver brooch from a private collection.

Montelius (O.) The geometric period in Greece. (Rep. Brit. Ass. Adv. Sci., London, 1904 [1905], LXXIV, 723.) Geometric style is earlier in Greece than in other parts of Europe; is a continuation of the Mycenaean but inferior to it. It lasted from the 12th to the 8th century B. C. The Mycenaean culture was due to "foreigners."

de Mortillet (A.) Les tumulus du bronze et du fer en France. (R. de l'Éc. d'Anth. de Paris, 1905, XV, 213-230, 10 figs.) Brief account of the tumuli of the bronze age and the first iron age in various parts of France, their contents, etc. The Hallstatt period has been styled the "tumulus epoch." The large dolmenic tumuli of Brittany seem to have been the sepulchres of powerful men, of the higher classes, etc. Sepulchral tumuli of the middle bronze age are rare. Iron age tumuli abound in Doubs, Jura, Ain, Haute-Saône, the Vosges, Meurthe-et-Moselle, Nièvre, Cher, Haute-Vienne, Landes, etc.

Munro (R.) et al. The lake village at Glastonbury. Sixth report of the committee. (Rep. Brit. Ass. Adv. Sci., Lond., 1904 [1905], 324-330, 1 fig.) Brief account of investigations in the spring of 1904 of mounds 57, 58, 78, 79, 55, 54, 51, 53, 64, and some undertaken in 1902. A list of objects (amber, glass, tin, bronze, iron, shale, animal and human bones, tusk, baked clay, flint, antler, stone, spindle, whorls, querns, pottery, etc.) found is appended.

Obermaier (H.) La station paléolithique de Krapina. (L'Anthropologie, Paris, 1905, XVI, 13-27, 2 figs.) Describes situation, stratification, etc., and compares the "station" of Krapina with others (Taubach, Shipka, Čertovadira, Wierzchow) of the lower paleolithic age in Central Europe, the paleolithic in

France, etc. O., who has visited Krapina, considers that the race there represented was "tall, with no real pithecoïd traits," and differed from the man of Spy in having a high forehead and being hyperdolichocephalic.

Les restes humains quaternaires dans l'Europe centrale. (Ibid., 385-410.) Résumés data (genuine and doubtful) concerning human remains of the Quaternary period in Austria-Hungary. Among the surely Quaternary remains are those from the Shipka cavern, Krapina cavern, "stations" of Willendorf, Predinost, Brunn, Gudenus cavern, etc. As more or less doubtful are listed the remains from Zuzlawitz, Jičín, Prokopt; the skulls from Bruex, Podhába, Lieben, and Stěbichovic; remains from Roter Berg, Schlappanitz, and Hussowitz (all near Brünn); remains from the caverns of Kostelík, Byčůvka, Jačůvka, Lautsch, Balcarova-skala. It appears that no real Quaternary human remains have so far been proved to occur in Hungary, Upper and Lower Austria (except Gudenus), or the littoral.

de Paniagua (A.) Silex reutéliens et mesviniens. (Soc. Arch. de Bordeaux, 1905, XXIV, 111-115.) General discussion of "eoliths," attributed to a pre-Chellean period of the first Quaternary (glacial).

Perdrizet (P.) Le miracle du vase brisé. (A. f. Relig., I. pag., 1905, VIII, 305-309.) Cites references from lives of St Gregory, St Donatus, St Fridolin, St Benedict, St Leo, etc., to all of whom has been attributed the "miracle of the broken vase," enumerated among those of Asclepius or Esculapinus.

Piette (E.) Les écritures de l'âge glyptique. (L'Anthropologie, Paris, 1905, XVI, 1-11, 11 figs.) Discusses the "inscriptions" of Lourdes, Arudy, Gourdan, Madeleine, Rochebertier, etc., according to P., "the oldest known writing." In the reindeer age there were successively in use two sorts of writing, pictographic (Papalian epoch) and curvate (Gourdanian epoch). Some of the symbols and characters belong evidently to the common *fonds* of the Mediterranean cultures. P. regards it as proved that in the "glyptic age" there existed in France, near the Pyrenees, "people having a symbolic (rather than hieroglyphic) writing formed of pictographic characters."

Pittard (E.) Pierres percées des cimetières tatars dans la Dobroudja. (R. de l'Éc.

- d'Anthr. de Paris, 1905, xv, 162-164, 1 fig.) Describes pierced stones set up in the Tatar cemetery of Beiram-dede, and compares them with similar objects in western Europe. Dr P. suggests that the passing of infants through the holes in such stones many have been "a second birth,"—the sick child was reborn well. The hole in the stone represented the maternal opening through which the child came into the world.
- Potrot (J.)** Recherches expérimentales sur le dialecte lapon d'Inari. (Fim.-Ugr. Forsch., Helsingfors, 1904, iv, 153-230.) First part (statistics) of a résumé of the kymograph studies of M. Aima in the physiological laboratory of the University of Helsingfors on the phenomena of quantity in the Lapp dialect of Lake Inari as represented by the language of M. S. Sujets, a pupil of the primary normal school of Lordavala.
- Reitzenstein (R.)** Zwei hellenistische Hymnen. (A. f. Religsw., Lpzg., 1905, viii, 167-190.) Discusses the early Christian "Hymn of the Soul," in the Acts of St. Thomas, and a song of the Manichaeans, recently discovered in MS. in Turkestan, both of which are treatments, more or less, of the *motif* revealed in the abbreviated myth ("I am a king's son," etc.) found in the wound-charm contained in the London-Leyden old Egyptian demotic magical papyrus, published by Griffith in 1904. The Egyptian myth seems the model for the early Christian hymn.
- Rossat (A.)** Les paniers, poème patois (Schw. A. f. Volksk., Zürich, 1905, ix, 112-127, 224-237, 292-305.) Continued from previous numbers. Dialect text, translation, notes, glossary of unusual and difficult words.
- Schmidt (W.)** The latest discoveries in prehistoric science in Denmark. (Rep. Brit. Ass. Adv. Sci., Lond., 1904 [1905], lxxiv, 723-724.) The oldest stone age is older than the kitchen-middens and much anterior to the dolmens. The Mullerø lake-dwellers of the stone age must have lived on rafts. The impressions of grains of cereals on pottery have revealed the species of these foods. Tumuli avoided swamps, followed ancient roads, and led toward river-fords. The *lar* or trumpet of the bronze age can still be used for musical purposes.
- Schrader (P.)** Le monde russe. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 73-85.) Sketches the development of Russia. Civilized Poland (politically extinct now, and socially more and more absorbed in Pan-Slavonia) and "barbaric" Russia have long shared the great Oriental plain of Europe, whose cold climate retarded the growth of a sedentary civilization, but acted as a certain unitary force. Contact between this great plain and Europe was gradually established by the Slavs. Muscovy, a sort of Asiatic march, semi-Asiatic itself, was the first political force of Russia, cemented by the pressure of the Asiatic Tatars. In Siberia a new Russian culture is arising, with more energy and less bonhomie than in Europe.
- Shrubsall (F. C.)** A comparison of the physical characters of hospital patients with those of healthy individuals from the same areas, with suggestions as to the influence of selection by disease on the constitution of city populations. (Rep. Brit. Ass. Adv. Sci., Lond., 1904 [1905], lxxiv, 702-704.) Résumés briefly results of investigations as to stature, cephalic index, and pigmentation in London hospital patients. Adult patients are fairer than the surrounding healthy population; children are much fairer than adults, and than healthy children. With passage of successive generations from rural to urban, blonds feel more acutely change of environment. Stature also shows a progressive diminution.
- Stengel (P.)** Ἄιδης Κλύταυρος. (A. f. Religsw., Lpzg., 1905, viii, 203-213.) Discusses the significance of *Klytaipuros*, "famous for horses," an epithet of Aides (Hades). Horse sacrifice among the Greeks seems always to have had a chthonic character.
- Studer (M.)** Étude sur un nouveau chien préhistorique de la Russie. (L'Anthropologie, Paris, 1905, xvi, 269-285, 2 figs.) Detailed account, with measurements of a new species (*C. pontifini*) of prehistoric dog discovered near Visokoïé on the south shore of Lake Bologoié in deposits containing paleolithic implements. This dog resembled in striking fashion the dingo of Australia. S. thinks that the dog of the European Quaternary exteriorly like the dingo, attached itself to savage man, was finally domesticated, and by crosses with the wolf became the ancestor of the large and ferocious breeds of European dogs. There was also a dwarfish species.

Thieullen (A.) Sur les pierres taillées anti-classiques. (Bull. Soc. d'Anthr. de Paris, 1905, 7^e s., VI, 199-203, 1 fig.) Brief account of a flint "retouched" to make the figure of a bird, an irrefutable proof, according to T., of the authenticity of these objects. A letter from Boucher de Perthes to M. Chalet is also cited.

— Éolithes et autres silex taillés. (Ibid., 113-125.) Criticism of the views in M. Ratot's *Coup d'œil sur l'état des connaissances relatives aux industries de la pierre, à l'exclusion du néolithique, en 1903*.

Vauvillé (O.) Sépultures néolithiques de Montigny-l'Engrain, Aisne. (Ibid., 151-154, 3 figs.) Presents additional data concerning the neolithic graves (covered way) of Montigny-l'Engrain previously described in 1887.

— Poteries néolithiques d'Erondele, Somme. (Ibid., 154.) Adds to item of 1891 concerning the pottery (14 different varieties of ornamentation) from a neolithic "station" at Erondele.

Vire (A.) Grotte préhistorique de Lacave (Lot), époque de Solutré. (L'Anthropologie, Paris, 1905, XVI, 411-429, 18 figs.) Describes briefly the topography, geological strata and condition, implements, etc., of stone (flints, pebbles), bone and horn objects (arrows, spearheads, etc., harpoons, needles, engravings on horn, etc., ornaments (shell, stone, teeth, bone), fauna (not extensive), osseous human remains (rare). The Solutrean "station" of Lacave is the highest and most eastern yet discovered in the valley of the Dordogne, and marked by the purity and homogeneity of implements, fauna, etc.

Zaborowski (S.) Contribution à l'anthropologie physique de la Sicile énéolithique. (Bull. Soc. d'Anthr. de Paris, 1905, 7^e s., VI, 196-199.) Résumés the article of Giuffrida-Ruggieri (see *American Anthropologist*, 1905, N. S., VII, 336) on the human remains of the caves of Isello and Chiusilla, near Cefalu, on the north coast of Sicily, belonging to the so-called "eneolithic" age. These Sicilian skulls resemble the ancient Egyptian in several respects.

— Le commerce et les noms de l'ambre, anciennement. (R. de l'Éc. d'Anthr. de Paris, 1905, XV, 204-208.) In the neolithic age the use of amber was spread from the Vistula almost to the Black sea, and straying to Switzerland, but not in Italy at this epoch.

The principal commercial route for amber was the Elbe; another was the Vistula. Italy received its prehistoric amber from the Baltic in exchange for metal (gold, bronze). The ancient Assyrian term for "amber" signifies "saffron that attracts"; Greek *electron*, was transferred from the name given to a composite metal of similar color; Latin *succinum* signified "resin"; the old Teutonic *glasum* (our *glass* is cognate) refers to its "shining" qualities, — the German *Bernstein* "flammable stone," is a recent manufacture; the Russian *jantare* is borrowed from Lithuanian (cf. Tchermiss *jandar*, "glass"). In Finnish, as in Teutonic *amber* and *glass* are related by name. Z. considers that the Borussai imposed themselves upon a Finnish substrate.

Zahler (H.) Rätsel aus Münchenbuchsee, Kanton Bern. (Schw. A. f. Volksk., Zurich, 1905, IX, 81-111, 187-210.) Lists, with explanatory and comparative notes, 445 riddles obtained from the pupils of the secondary schools of Münchenbuchsee in the canton of Bern, Switzerland, in the winter of 1898-99.

AFRICA

Anthony (R.) et Hazard (R.) Notes sur la myologie d'un nègre de l'Oubangui. (L'Anthropologie, Paris, 1905, XVI, 445-456, 4 figs.) Treats of the musculature of a negro of the Ubangi, who died in France in 1903, from sleeping sickness. There was present a greater (than in white) development of the muscles in the transverse direction and at the same time a shortening in the longitudinal (perhaps an individual character), — the subject was powerful rather than agile. The muscles were a deeper red than seen usually in the white man, and the subcutaneous fat a more pronounced golden yellow.

Avelot (R.) La musique chez les Pahouins, les Ba-kalai, les Eshira, les Ivela et les Ba-Vili. (Ibid., 287-293, 11 figs.) Describes the tom-toms, several sorts of stringed instruments (possibly borrowed from the Mpongwe), horn, proto-marimba, musical bow, etc., of the Pahouins; the *kongo* (mouth-bow) and fetish-trumpet of the Bakalai; the *bomo*, etc.

Bertholon (L.) Note sur le nom de "Maures." (Bull. Soc. d'Anthr. de Paris, 7^e s., VI, 141-145.) Argues

that *Maure* (our *Moor*), from Greek *μαῖρος* "black," referred originally to the dark population of northern Africa at the time of the Berber immigration,—from such application it has come to be applied geographically to all the inhabitants of a certain region. In the discussion Atgier points out that while, outside the cities, in Algeria, the tent Arab or Bedouin is never called "Maure," his wife is styled "Mauresque," so that the proverb or jest runs "*Arabe au féminin fait mauresque*."

— Note sur le nom de Ibères, Berbères, et Africains. (Ibid., 145-149.) Argues that the names *Africain* and *Berber* are synonymous and date from the time of the Phrygian invasion—*barbaricus* and *phrygius* signified the same. In the discussion M. Atgier maintains that both *Iber* and *Berber* go back to the Libyan root *ber*, "black."

Capitan (L.) Étude d'une série de pièces recueillies par M. Amélineau dans les tombeaux très archaïques d'Abydos. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 209-212, 11 figs.) Describes flint knives, scrapers, arrow-heads, etc., found by M. Amélineau in the prehistoric tombs of Abydos, some of which are of curious forms, and others (hyalin quartz) of fine workmanship. The nature of certain arrow-heads suggests that the ancient Egyptians may have employed poisoned barbs.

Capitan (L.) et Cayeux (M.) Étude pétrographique des matières employées pour la fabrication des vases en pierre préhistoriques égyptiens. (Ibid., 96-100.) Describes briefly 15 different sorts of hard rock used by the ancient Egyptians for the manufacture of stone vessels—syenite, diorite, gabbro, epidiorite, granite, porphyrite, leptynite, serpentine, etc.

Carus (P.) The Queen of Sheba according to the tradition of Axum. (Open Ct., Chicago, 1905, xix, 31-34.) Cites from Littmann's *Bibliotheca Aethiopica*, Vol. I, the Tigre legend (a local tradition of Axum) of the Queen of Sheba, who goes to Solomon to be cured of an ass's heel, caused by the blood of a dragon. The story refers to the ark of Mary preserved at Axum.

— The history and significance of the Rosetta stone. (Ibid., 89-91.) Based on Budge's recent work on this subject.

Decorse (J.) Le tatouage, les mutilations ethniques et la parure chez les popula-

tions du Sudan. (L'Anthropologie, Paris, 1905, xvi, 129-147, 14 figs.) Discusses tattooing of several sorts, ethnic deformations and mutilations (cranial, dental, aural, nasal, labial, circumcision, and ornaments (necklaces, bracelets, wristlets, anklets, etc.) among the Sudanese negroes. There are two distinct types of tattooing, one reminiscent of combat, the other ornamental (the faces of the women do not rival those of the men, but their body and limbs often do so). Real cranial deformation is rare. Filing the teeth is common. The pierced earlobe bears all kinds of "ornaments." Lip-plugs abound. Finger-rings (a mark of the idle) are rare.

— La chasse et l'agriculture chez les populations du Sudan. (Ibid., 456-475, 6 figs.) According to Dr D, the negro of the Soudan hunts for food, not for sport. Except in the case of the elephant and the hippopotamus, hunting is rather a quest after the young in nests and lairs—trapping and snaring are also in vogue, even the children trap birds, etc., those of the Chari especially. The effect of a hunting condition of existence is noted,—there is a continual tension of the senses. All negro agronomy is dominated by the habitat. The negro is practically at one with the face of nature; he is not its master, as is man in agricultural Europe. The imperfection is not all due to natural laziness. Clearing land has been a difficult task. He has often reached the maximum to be obtained with the means at hand. To improve negro agriculture, one needs, not to attack the methods of cultivation, but to modify the cultivated products. Better seeds or better useful plants would mean more than better machinery of cultivation.

Fishberg (M.) Beiträge zur physischen Anthropologie der nordafrikanischen Juden. (Z. f. Demogr. u. Stat. d. Juden, Berlin, 1905, I, Sdabr., pp. 4.) Gives, with tables of measurements, the results of the investigation (in the summer of 1905) of 606 Jewish boys (5 to 16 years) from Tunis, Algiers, and Constantine (head-measurements, color), and of 46 native adult Jews from Morocco, Algiers, and Tunis, together with 31 emigrants from these regions measured at New York. The children of N. African Jews furnish in proportion about one-sixth as many blonds as those of European Jews. In the N. African Jews the dark

type is purer. The former are also much more dolichocephalic; likewise longer and narrower nosed.

Frobenius (L.) Bericht aus Dima. (Z. f. Ethnol., Berlin, 1905, xxxvii, 767-770.) Calls attention to the "culture islands" (fine wooden ware, weaving, etc.), increase in length of bows indicating north to south influence. F. finds two types, the old central-African of the primitive forest (men clothed, women almost naked; use bow only; no circumcision; maternal uncle succession and children; village-heads only; old palm-leaf tobacco-pipe), and the later South African of the southern steppe (men little clothed, women more; lance more common than bow; circumcision; son inherits; germs of "king"; water-pipe for hemp). The Kassai pile-dwelling is specially interesting.

Hotchkiss (W. R.) A glance into Central Africa. (So. Wknn., Hampton, Va., 1905, xxxiv, 488-493, 5 figs.) Contains notes on the M'kamba.

Huguet (J.) Le pays de Laghouat. (R. de l'Éc. d'Anth. de Paris, 1905, xv, 185-203, 6 figs.) Historical sketch and description of Laghouat, the "capital" of southern Algeria. At the epoch of Arab invasion the Laghouat region was occupied by tribes belonging to the great Berber confederation of the Magr' Aoua. It had several Roman appellations. The tomb of a celebrated marabout, Aissa, is here. Laghouat was concerned in the movement of Abd el Kader. The indigenous population is composed of Arabs and Mzabite Berbers. The sedentary Arabs are represented by the Ksuanas, the nomad by the Larbaa.

Leprince (M.) Notes sur les Mancagnes ou Brame. (L'Anthropologie, Paris, 1905, xvi, 57-65.) Treats briefly of physical characters (stature av. 1.65 m.), dress and ornament, tattooing (done in adult age; not as caste-sign), dwellings (Portuguese influence), religion (fetichistic; oppose Islam, Catholicism, etc.), marriage, funerals (differ from neighboring peoples), social organization (chief; no slavery), justice (chiefs aided by fetish-men), dances (mimic war; lascivious women's dance). The numerals 1-20 are given.

Loyson (E. H.) Glimpses of Islam in Egypt. Open Cl., Chicago, 1905, xix, 418-437, 8 figs.) Reprint of selected portions from Mme. Loyson's book *Through the Lands of Islam*. Notes

on the *fellahs*, a shiek of Assuan, the people of the desert, etc.

Macalister (A.), Myers (C. S.), et al Anthropometric investigations among the native troops of the Egyptian army. (Rep. Brit. Ass. Adv. Sci., Lond., 1904 [1905], lxxiv, 339-340.) Brief report on anthropometric data (measurements of 1,005 fellahin) of 1901-1902. Coptic population is shown to be more variable than Mohammedan. Modern population of Qena province, as compared with ancient Naqada, suggests that "the homogeneity of the Upper Egyptians has not been seriously disturbed during the last 7,000 years." No evidence of correlation between stature and cephalic index, or the infiltration of a taller race into Egypt.

Montell (C.) Considérations générales sur le nombre et la numération chez les Mandés. (L'Anthropologie, Paris, 1905, xvi, 485-502.) Discusses the numerical system of the Mandés of French West Africa, particularly the numbers 1-10, whose etymology, etc., is indicated. All the Mandé dialects have a quinary system, — 6 is new point of departure: in Malinké the number-names still recall those of the five fingers.

Myers (C. S.) The variability of modern and ancient peoples. (Rep. Brit. Ass. Adv. Sci., Lond., 1904 [1905], lxxiv, 718.) Author states that his Egyptian anthropometric investigations lend no support to the theory that "modern peoples deviate more widely than ancient peoples from their respective means." Modern and ancient peoples living under like conditions of country and climate differ little in variability.

Passarge (S.) Das Okawangosumpfland und seine Bewohner. (Z. f. Ethnol., Berlin, 1905, xxxvii, 649-716, 46 figs.) Treats of the inhabitants of the marsh lands of the Okavango. — Batauana or Bairoa, Bamangwato, Bakalahari, Baknisi, Massúbia, Makálaka, Mambukúshu, Makóba, Matete - Mahura, Batanka, numbering altogether some 25,000, — their history (chiefs, etc.), anthropological characters (Bushmen and negroes are easily distinguished, *mtis* are lighter than the negro; the purest negro-type occurs in the Kwando-Zambesi tribes; the Bechuana are a mixture of negroes with Hottentots and Bushmen), language (the speech of Bushmen and Bantu is absolutely different; Bechuana serves as a means of communica-

tion between several peoples), settlement and cultural relations (in the marshland itself permanent settlements are lacking, in the transitional territory the division into one town and numerous villages is important politically and socially), culture-possessions (clothing and ornament, weapons, houses and implements, — with some detail, — commons and water-vessels, musical instruments, — with the Bushmen the musical bow is the hunting bow itself, — drawings and paintings of the Bushmen, agriculture and cattle-breeding, the dog, hunting and fishing devices, food), trade, social relations, manners and customs, political conditions. Vocabularies of Susubia and Ssekuba (pp. 715-716).

Schweinfurth (G.) Ueber die steinzeitlichen Forschungen in Oberägypten. (Ibid., 622-624, 4 fgs.) Describes certain unexplained stone artifacts of the paleolithic age from "stations" near Thebes.

Siger (C.) Blancs et noirs. (Mercure de France, Paris, 1905, LVII, 543-550.) General discussion of the African question. "The soul of the black is evolving, but 'false humanity' on the part of Europeans leads him to infer feebleness. According to S. the beginning of philosophic wisdom, for white and black alike, lies in the respect for and consciousness of power."

Verneau (R.) Note sur quelques crânes du 2^e territoire militaire de l'Afrique occidentale française. (L'Anthropologie, Paris, 1905, XVI, 41-56, 6 fgs.) Describes with tables of measurements 4 Lobi, 2 Bobo, and 1 Tiofo skulls (all but one male) from French West Africa. The Lobis are not a homogeneous group. Mandingo influence has, apparently, made itself felt earlier among the Bobos than among the Lobis. The cephalic index of the latter ranges in the 4 skulls 65.95-78.02.

Vicente do Sacramento (J.) Apontamentos para a lingua macua. (Bol. Soc. de Geogr. de Lisboa, 1904, XXII, 329-338, 361-366; XXIII, 1905, 40-52, 125-131, 187-196, 263-272, 300-306.) Grammatical sketch of the Macua language of Mozambique, with extensive vocabulary ca. 2500 words. The terms for the genital organs are used for abuse and insult. Counting is treated with some detail (pp. 125-129). The conjugation of the verb *ôhúca*, 'to anchor,' occupies pages 40-49.

ASIA

Albers (A. C.) Modern India. (Open Ct., Chicago, 1905, XIX, 588-603, 657-681, 20 fgs.) Treats of Hindu character, women (no girlhood), ceremonies (investiture of boy with sacred thread, bride-choosing, marriage ceremony, mourning), begging, religion and worship (Kali, Durga, Jaganat, Benares and its temples), caste, the *stupa* at Sarnath (where the enlightened Gautama delivered his first sermon), Buddha-Gaya (the Buddhist Mecca, where is the sacred Bo-tree), the Bhutanese, etc. Miss A. is head of a girls' school in India.

Assmy (—) Eine Reise von Peking durch China und das tibetanische Grenzgebiet nach Birma. (Z. f. Ethnol. Berlin, 1905, XXXVII, 481-500, 9 fgs.) Describes journey in 1906 from Peking across China into Tibet. Contains some notes, on the peoples, etc., of the regions visited.

Bezold (C.) Syrisch und Aethiopisch. (A. f. Religsw., Lpzg., 1905, VIII, 286-304.) Notes on literature of 1903-1904 relating to Syrian and Ethiopian philology, mythology, religion, etc. Particularly valuable are works of Dussaud in Syrian mythology, Budge's translation of Palladius's *Historia Lausiaca* (320 A. D.).

Buckley (E.) The Japanese as peers of Western peoples. (Amer. J. Sociol., Chicago, 1905, XI, 326-335.) Treats of physical characteristics, skill and industry, invention and science, philosophy, art, moral faculty, religion. B. concludes that there can be no "yellow peril" in the case of Japan, "only an honorable rivalry, profitable alike to yellow and white." Japanese art (both fine and decorative), which has won world-recognition, "is an exclusively Mongolian product."

Buddhist and Christian gospels. (Open Ct., Chicago, 1905, XIX, 538-546.) Résumés the work done by A. J. Edmunds in comparative religion. His pamphlet on *Buddhist and Christian Gospels* was published in a second edition in 1904. Many interesting parallels are adduced.

Buffet (E. P.) A Buddhist in Jewry. (Ibid., 622-630.) Cites parallels to the philosophy of Gotama from the book of Ecclesiastes.

Carus (P.) Assyrian poems on the immortality of the soul. (Ibid., 107-110,

- 2 fgs.) Cites poem concerning the visit of the gods to a dying man, a prayer for an Assyrian king, etc.
- The Ainu. (Ibid., 163-177, 13 fgs.) Brief account of author's visit to the Ainu at the St. Louis Exposition. Also extracts from Prof. Starr's recent book, *The Ainu Group at the St. Louis Exposition*, on the bear-festival, etc.
- Zoroaster's contribution to Christianity. (Ibid., 409-417, 1 fg.) Refers to the coming of the *magi* (Matth. ii. 1 and the Arabic *Gospel of the Infancy*), King Cyrus (Is. xiv. 2), the Persian influence in the Apocrypha, the Persian doctrine of Ahuramazda and Angra-mainyu, Mithraism, etc., and find in Persia the anticipation of the "new faith that was to develop its full bloom in Christianity."
- Moral tales of the treatise on response and retribution. (Ibid., 547-562, 604-621, 14 fgs.) Gives translations of short stories with pictures by Chinese artists. See *Suzuki*.
- Dodge (A. P.) The Bahai revelation. (Ibid., 56-63.) Criticises a previous article by Dr. Carus on the new religious movement of the followers of Beha Ullah, "the blessed perfection," as he is usually called by believers in the Orient, — the devotees are known as Babists.
- Évolution de l'idée religieuse dans l'Inde. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 101-104.) Critical review and résumé of André de Parnigou's recent book, *Les temps héroïques*, in which the view is mistakenly set forth that India was the cradle of all human mythology, and the *mater gentium*.
- Ghosen el Howis (Mr.) Excavations at Sidon. (Amer. Antiq., Chicago, 1905, xxvii, 223-225.) Notes on the remains of the temple of the Phenician god Eshmun. Inscriptions (possibly charms) were found on the hidden sides of the stones.
- de Gourmont (J.) L'idée du retour éternel dans les religions de l'Inde. (Mercure de France, Paris, 1905, LVII, 338-356.) Author shows that the hypothesis of "the eternal recurrence of things," figuring so much in Nietzsche, — existing also in the so-called "platonic year" of German folk-lore, — goes back originally to the religions and philosophers of India; belongs with their cosmogonic ideas.
- Hawkins (C. J.) Excavations and the Bible. (Open Cl., Chicago, 1905, XIX, 1-7.) Cites evidence to show that Israel was not an isolated nation, but absorbed much from the vast old-world civilization preceding her.
- Herbertson (F. D.) Agricultural villages in the higher Himalayas. (Geogr. Teacher, Lond., 1905, III, 23-27, 2 fgs.) Treats briefly of villages in the Panj or upper Oxus valley described by Olufsen in his recently published *Through the Unknown Pamir*, the method of irrigation, etc. In crossing streams the *gupiar* corresponding to the Mesopotamian inflated skin is in use.
- ten Kate (H.) Neue Mittheilungen über die blauen Geburtsflecken. (Z. f. Ethnol., Berlin, 1905, XXXVII, 756-758.) Notes occurrence in Tamil and Singhalese children in Ceylon, and cites item of Javanese folk-lore concerning *tokh*, or skin-spot. The Singhalese name is *upan happe*, "birth spot." Ten K. reports that Ceylonese children, boys especially, have little of those child-like charms of face, etc., found in so many children of other colored races. Both in the Singhalese and Tamil adults the author noticed frequently a sort of *pseudostipor*. Ten Kate also finds the Dravidian to resemble strongly the Australian type.
- Köhler (W.) Die Schlüssel des Petrus. Versuch einer religionsgeschichtlichen Erklärung von Matth. 16, 18, 19. (A. f. Religsw., Lpzg., 1905, VIII, 214-243.) K. concludes that this famous passage of the New Testament is not a *λόγος κυριακός*, nor something taken over particularly from Judaism to Christianity, but a transference from the antique world, — Mithraism is perhaps responsible for a good deal.
- Latham (H. L.) The views of Shinto revival scholars regarding ethics. (Open Cl., Chicago, 1905, XIX, 100, 106.) Cites extracts from Japanese scholars of the seventeenth and eighteenth centuries concerning Chinese ethics, the Mikado, example and precept, offenses, punishment and rewards, fear of the gods, etc.
- von Luschan (F.) Ueber alte Porträt darstellungen aus Sendschirli. (Z. f. Ethnol., Berlin, 1905, XXXVII, 624-625.) Discusses briefly the four heads from one of the large reliefs dug up at Sendschirli in 1888 — they belong ca. 1300-1400 B. C. Von L. holds that the large nose is pre-Semitic, not Semitic, and that the old Asia Minor skull closely resembles the so-called "Alpine type" — the Al-

- pine race came from Asia Minor, according to von L.
- Marquand (A.)** The palace at Nippur not Mycenaean but Hellenistic. (Amer. Antiq., Chicago, 1905, XXVII, 163-165.) Reprinted from the *Amer. Jour. Archaeol.*, Jan.-Mar., 1905.
- Masterman (E. W. G.)** Explorations in the Dead Sea valley. (Ibid., 249-258, 3 figs.) Reprinted from the *Biblical World*. Gives brief account of Costigan (1855), Molyneux (1847), and Lynch (1848) expeditions.
- Nöldeke (T.)** Mutter Erde und Verwandtes bei den Semiten. (A. f. Religsw., Lpzg., 1905, VIII, 161-166.) Cites examples of the Semitic concept of earth as "mother of all," "mother of all living," etc. Also the Semitic correlation of terms for "seed," *sperma*, offspring, e. g., the roots *z-r* and *drw*.
- Offord (J.)** The biblical Nisroch and the Assyrian and Babylonian Nisuku. (Amer. Antiq., Chicago, 1905, XXVII, 127-128.) Nisuku was an important deity reported as worshiped by Sennacherib (II Kgs. XIX, 37), as "Nisroch, his god." The identification is doubted by some.
- Oppert (G.)** Die Gottheiten der Indier (Z. f. Ethnol., Berlin, 1905, XXXVII, 501-513, 717-754.) Treats of the cult of the aborigines of India (the highest spirit, in Tamil Aiyannārs; in Canarese, Ayyappa; the Dravidian Ellamma; the black goddess Kalamma or Kālī; Māriyammal or Mari; Visahart and Manasā, etc.). According to O. "on the whole the basal character of the Grāmadevatā has remained unchanged, although Brahmans, Buddhists, Mohammedans and Christians have come in contact with it." Grāmadevatā ("village deity"), a Sanskrit long-word, is the usual name for the local god.
- Phelps (M. H.)** A representative Hindu. (Open Ct., Chicago, 1905, XIX, 438-439.) An account of Hon. P. Ramanathan, solicitor-general of Ceylon, now visiting America.
- Proctor (H.)** Alphabetic origins. (Amer. Antiq., Chicago, 1905, XXVII, 128-130.) Résumés recent articles of Petrie and Pitcher—the first considers that the Phœnician alphabet is of non-hieroglyphic origin, the second believes that "alphabetic characters owe their form to arbitrary invention." P. thinks that the names were adopted from the sacred Hebrew square alphabet, which may be "the very character in which the Decalogue was written on the Two Tables of Stone by the 'Finger of God.'"
- The Bible and the Syrian archaeology. (Ibid., 197-199.) Résumés part of V. Ermon's pamphlet *La Bible et l'Archéologie Assyrienne*, treating of Adon, Baal, Shemesh, etc. J. Offord adds (199-200) some notes on Syrian places mentioned in the Tel-el-Amarna tablets, etc.
- Roux (P.)** La prostituée japonaise au Tonkin. (Bull. Soc. d'Anthr. de Paris, 1905, V^e s., VI, 203-210.) Treats of methods of recruiting, distribution, somatology, psychology, pathology, of the Japanese prostitute in Tonkin. Pauperism here, as elsewhere, lies at the basis of prostitution. The prostitutes are of ages from 14 to 30 (majority ca. 18), are small and not well built or well proportioned (the parts adjoining the genital system are prominent). They can all read and write and are not at all devoid of sentiment, are very loyal to their native country. Venereal diseases are very common. Even in the midst of their vicious profession these women preserve something of virtue—"the lotus, with roots in the mud, can produce beautiful flowers" (Japanese).
- Note ethnographique sur les peuplades du Haut-Tonkin, IV^e territoire militaire. (Ibid., 155-156.) Treats of the Ounis, Pulas, Thāi or Thō (physical characters, intellect, religion and funeral rites, family, marriage, etc., foods and drinks, houses, industries, art, ornament), Niāns, Nhūngs, Māns or Yaos, Meos of Upper Tonkin (fourth military district) numbering in all some 36,000,—the Thāi, Niāns, Māns, and Meos each count between 7000 and 8000. The written languages of the Ounis and Niāns employ Chinese characters. Several of the tribes write and speak Chinese. The Thāis average 1.60 m. in height and 53 k. in weight. They are intelligent, courageous, honest, frank and good-natured. Although the Thāi language is Siamese spoken and written, the Thāis use Chinese characters in this region. The Thāis are agriculturists and the arts are in a rudimentary state (pottery, e. g., comes from China or Annam). The Niāns and Nhūngs are shorter than the Thāis. The dress of the Meos and Māns is very curious. Both of these peoples burn the forest for planting.
- Schwally (F.)** Alte semitische Religion im allgemeinen, israelitische und jüdische

- Religion. (A. f. Religsw., Lpzg., 1905, VIII, 275-285.) Notes on literature of 1905 relating to ancient Semitic religion in general, religion of Israel, Judaism, — works of Curtiss, Lagrange, Torge, Matthes, Moulton, Dussaud, Sarre, Samter, Zimmern, Winckler, Nickel, Müller, Jeremias, Delitzsch, Budde, Hoffmann, Marti, Westphal, Bohn, Erbt, Meinhold, Kurtz, Lücke, Böhme, Bousset, Güdemann, Volz, Böhlen, et al. are cited, besides periodical literature.
- Sternberg (L.)** Die Religion der Giljaken. (Ibid., 244-274, 456-473.) This excellent article treats of cosmogonic conceptions, ideas about animals (especially bear and killer whale), deities (particularly gentle gods), the bear-feast and the ritual procedures accompanying the killing of a bear, evil-spirits and shamanism, the fate of the soul. The Giljak is an animist, and for him man, the best known and most understood of all beings, is naturally the prototype, — every visible thing is merely a form in which hides a god, — a man. The religion of the Giljaks is a composite of pantheism, animal-cult, fetishism, demonism, polytheism, etc., on a common substrate of anthropomorphism.
- Suzuki (T.) and Carus (P.)** A religious book of China. (Open Ct., Chicago, 1905, XIX, 477-493.) Translation, with introduction and notes, of the *T'ai Shang Kan Ying P'ien*, or "The Treatise of the Exalted One on Response and Retribution," a work of Taoist piety and ethics (consisting of an introduction, moral injunctions, description of evil-doers and their penalty, sayings from various sources, conclusion).
- Velde (—)** Eine Sammlung altchinesischer Hieb- und Stichwaffen. (Z. f. Ethnol., Berlin, 1905, XXXVII, 78-5786.) Brief account of the collection of old Chinese weapons (lances, halberds, swords, daggers, battle-axes, blunt weapons of various sorts, "birds' claws," crescents, two-handed swords, etc.) in the Museum für Völkerkunde, — obtained in Peking in 1898-1900. There are many fanciful forms of swords. The handles indicate the small size of the hands of the Chinese.
- Virchow (H.)** Weitere Mitteilungen über Füße von Chinesinnen. (Ibid., 546-568, 4 pl., 2 figs.) Treats of the plaster-cast of foot of a thirty-year old woman (foot bound from sixth year), and X-ray pictures of the feet of two adult women and a girl of 10 years, the Chinese shoe, etc. V. styles the Chinese foot *pes equino-ware-calcaneus*. The Manchu and Hakka women and the women of fisher-peoples do not bind the feet.
- Voiron (S.)** Chez les Babis. (Mercure de France, Paris, 1905, LVIII, 523.) Describes a visit some three years ago to Abbas Effendi and to Abu-Chirazi, a celebrated theologian, who explained the teachings of Beha 'oullah, who gave new life to Babism.
- Warren (W. W.)** Newest light on our oldest mother country. (Open Ct., Chicago, 1905, XIX, 568-572.) Discusses Aryan origins and particularly Bal Gangadhar Tilak's recent work, *The Arctic Home in the Vedas*, in which the theory is put forth that "the ancestors of the Vedic Rishis lived in an Arctic home, in interglacial times." W. had advanced in his *Paradise Found* the view that the cradle of the human race was at the north pole.
- Zaborowski (S.)** Les Lolos et les populations du sud de la Chine d'après les ouvrages chinois. (R. de l'Éc. d'Anthr. de Paris, 1905, XV, 86-95, 4 figs.) Based on photographs of the Lolos of Kien-Chang by M. François and translations by M. Beauvais of Chinese works on the indigenes of Yunnan. Z. considers the Lolo physical type "sub-Caucasic," related rather to the peoples of Assam, Burma, etc., than the Tibetan. The Lolos burn their dead and are monogamous. The old Chinese records describe them as they are to-day, the mass of the population of this region having long been Lolo. The Lolos form a solid block even now. Valuable data are contained in the Chinese documents.

INDONESIA, AUSTRALASIA, POLYNESIA

- Igorotes, The.** (Open Ct., Chicago, 1905, XIX, 113-122, 13 figs.) Brief general description. Based on government information.
- Klaatsch (H.)** Reisebericht aus Sydney. (Z. f. Ethnol., Berlin, 1905, XXXVII, 772-781.) Describes travels in Australia Sept. 27, 1904, to Feb. 17, 1905, and gives account of the mummy of old "King Narcha" from the Boenje country, which K. obtained at much trouble and expense. Another mummy and 45 crania (30 had also most of the other

bones) are among the remains secured by the author. From kitchen-middens many primitive flints ("eoliths") were obtained, — some tribes have such rude artefacts still beside polished axes, the origin of which is doubtful. Dr K.'s visit to Australia has been rich in material and ethnic data.

Negritos. The, viewed as pygmies. (Amer. Antiq., Chicago, 1905, XXVII, 130-131, 1 fig.) Extract from Jenks' Report.

Pösch (R.) Ueber den Hausbau der Jabinleute an der Ostküste von Deutsch-Neuguinea. (Z. f. Ethnol., Berlin, 1905, XXXVII, 514-518, 4 figs.) Describes the construction of the ordinary house and the two-story *lumi* (bachelor house; or assembly house) of the Jabin of Simbang in eastern German New Guinea. Houses are on piles, even on dry ground. The walls are adorned with figures of fishes and snakes; human and animal figures in relief and painted. Jabin house-building has some analogies with Malayan, — the view of von Luschan as to the relation between Malay and Melanesian house-building is confirmed.

Schellong (O.) Weitere Mitteilungen über die Papuas (Jabin) der Gegend des Finischhafens in Nordost Neu-Guinea, Kaiserwilhelmsland. (Ibid., 602-618.) Gives data additional to those recorded in 10 previous publications, concerning hair and hair-dressing (cutting, or shaving), boring of nasal septum (with pinna of sago-palm), sense of smell (predilection for pleasing odors), language (multiplicity of dialects often seemingly unrelated), trade (private; auction-markets), industries (special places for manufacture of nets, spears, etc.), children ("good" and well-behaved), politeness (sometimes covers deceit), tobacco, betel-chewing, property, theft, fishing and fish-weirs, bird-catching, meal-time (one big meal toward evening), food, use of coco-palm and products, diseases, burial, mourning, treatment of widow, etc.

Seurat (L. G.) Les engins de pêche des anciens Paumotu. (L'Anthropologie, Paris, 1905, XVI, 297-307, 17 figs.) Describes hooks for bonito, sharks, murex, attachment of line to hooks, manufacture of shell hooks, canoes and their outfit, implements, etc., in use formerly among the inhabitants of Paumotu (Low Archip.). European manufac-

tures have now driven out almost entirely the ancient native devices.

— *Les mares des îles orientales de l'archipel des Tuamotu.* (Ibid., 475-484, 5 figs.) Describes the *mare*, or altars, of the ancient natives of the islands of Niuhi or Fakalina (at Tahiti-nui, Katipa) and Fagatau (at Ramapohia). There are also *mare* on the island of Napuka, but none on Pukapuka. These *mare* are numerous and each family has its own. They differ in type from those of Temoe and Marutea, in the southeast of the archipelago. The principal part of the *mare* is an ohlong construction of piled stones.

Thomas (N. W.) Ueber Kulturkreise in Australien. (Z. f. Ethnol., Berlin, 1905, XXXVII, 759-767, 2 figs.) Criticises the conclusions of Dr Gräbner (See *American Anthropologist*, 1905, N. S., VII, 720) with respect to culture areas in Australia, arguing for a bringing together of all data concerning the chief characters of aboriginal culture rather than the imperfect consideration of a large number of characters. T. points out that Roth, Spencer and Gillen deal with territory outside Gräbner's so-called "West Papuan culture area." The change from maternal to paternal succession is not due to Papuan influence. Distribution of canoes, knocking out of teeth, etc., are discussed. Descent is overestimated.

AMERICA

Adam (L.) Grammaire occawai. (J. Soc. d. Amér. de Paris, 1905, N. S., II, 209-240.) Second section treating of the verb and its modifications. The expressions "i-kis-ma-puia," "he kissed him," and "danki-ma-puia-i pona," "he thanked him," indicate the introduction of English words via the missionary.

Avery (F. F.) Suggested changes in Indian schools. (So. Wkman., Hampton, Va., 1905, XXXIV, 378-384.) Advocates substitution of district for reservation schools, extension of day schools, etc.

Barnard (W. C.) A few rare specimens. (Amer. Antiq., Chicago, 1905, XXVII, 225-226.) Brief descriptions of a cliff-dweller's stone pipe from Phoenix, Ariz.; a green granite "medicine cup," from Bee creek on the Cherokee reservation, Ind. Ty; a stone mortar from Osage

river, Mo.; and a white flint spearhead from near Seneca, Mo.

Benedict (J. D.) Normal schools for teachers of Indians. (So. Wkman., Hampton, Va., 1905, XXXIV, 518-522.) According to author "the greatest need of Indian education to-day is a corps of teachers trained to understand Indian life," and all that this means.

Boas (F.) The mythologies of the Indians. (Intern. Quart., N. Y., 1905, XII, 157-173.) Illustrates historical development of mythology by citation and discussion of the Tlingit tale of the adventures of Nanak (i. e., the Russian explorer and trader Baranoff, 1801), and of a sun-myth of the Comox Indians. The elements of a complex myth "appear in endless combinations, partly in the tales of the tribe that owns the myth, partly in those of its neighbors." As to geographical distribution, "there has been liberal exchange all over the northern half of the continent," and "a certain amount of interchange between the Old World and the New." First efforts at explanation must be directed toward an interpretation of the reasons leading to borrowing, and to the modification of mythological material by assimilation.

— Anthropometry of central California. (Bull. Amer. Mus. Nat. Hist., N. Y., 1905, XVII, 347-380, 9 pl.) Treats material collected by Dr R. B. Dixon in 1899-1900 and by Mr V. K. Chesnut in 1892-1893. Measurements are given of 216 individuals (Maidu 60, Hat Creek and Pit River 8, Paiute 1, Pomo 28, Yuki-Pomo, 2, Yuki 48, Wintun 2, Yokuts 1, Wintun-Yuki 1, Wylackie 2, half-breeds 12, Maidu half-breeds, 18, Pit River half-breeds 4, Pomo half-breeds 12, Yuki half-breeds 9, Wintun half-breeds 5, miscellaneous 3). The Yuki differ in type from all the neighboring tribes, being short (av. of males 1590 mm.), longer headed (av. ceph. ind., 77.5), with narrow and low faces. This type is also found among the Maidu of the foot hills (but disappears farther to N. and E.) and to a less extent among the Pomo. Among the Pomo and toward the interior a type (av. stat. of males 1680; ceph. ind., 83; av. width of face, 149) prevails a tribe resembling that of the Indians of the Nevada-Utah plains. The Pit River Indians are excessively short-headed (possibly due to head flattening). Dr B. suggests that the Yuki type may be related

to the short-statured long-headed type of the ancient inhabitants of Sta Barbara island. A rapid reduction of the Indian population is in process.

Borba (T. M.) Caingang deluge legend. (J. Amer. Folk-Lore, Boston, 1905, XVIII, 223-225.) Accounts for westward course of rivers, origin of monkeys, tigers, tapirs, ant-eaters, song and dance, size of feet of Indians, etc. English text of a legend published originally in Portuguese in the *Revista do Museu Paulista*, 1902.

Conard (Lætitia M.) A visit to Quinault Indian graves. (Open Ct., Chicago, 1905, XIX, 737-744, 5 figs.) Describes graves of Quinault and Queets Indians of Washington state, visited in 1902. They are houses of the dead rather than graves, and "the profuseness with which the graves are furnished with articles of luxury and use is quite in contrast with the meager furnishings of the houses of these Indians, which must be seriously diminished when a member of a household dies." Traces of old Indian customs still survive.

Curtis (W. E.) Education and morals among the Navajos and Pueblos. (Amer. Antiq., Chicago, 1905, XXVII, 259-264.) Reprinted from the *Chicago Record-Herald* for Aug. 12, 1905. Discusses the effect of education, — "the morals of the Pueblo Indians have always been high, but they were higher before the whites came." According to C. J. Crandall, superintendent of the Indian school at Santa Fe, "the Navajos are much brighter and more ambitious than any other Indians and the Apaches are next to them."

Diguet (L.) Anciennes sépultures indigènes de la Basse-Californie méridionale. (J. Soc. d. Amér. de Paris, 1905, N. S. II, 329-333, 2 figs.) Gives an account of author's examination of two funerary grottos or shelters at El Pescadero, near Cape Pulmo, southern California, their contents (7 skeletons, bone implements, etc.). In a cave near Santiago were found a woman's "apron," some wooden implements and objects; besides the human remains. These burials belonged probably to the Indians known as Pericos.

Dorsey (G. A.) Caddo customs of childhood. (J. Amer. Folk-Lore, Boston, 1905, XVIII, 226-228.) Treats of customs to protect new-born child (sun-blessing, fire-blessing, etc.) and the in-

fant up to two years. Also the "teaching" of the child by grandmother or some old person when eight or ten, — child's preparation for dangers of travel to the other world.

Doxson (C.) An Indian as a mechanic. (So. Wknn., Hampton, Va., 1905, xxxiv, 503-505.) Relates experiences of author, an Onondaga, now a member of the labor union and one of the highest paid machinists in the shop.

Fehlinger (H.) Das Einwanderungsproblem in den Vereinigten Staaten. (A. f. Rassen- u. Ges.-Biol., Berlin, 1905, II, 413-423.) Discusses statistics of Report of the Commissioner of Immigration for 1904 and of the Twelfth Census. The effects of "good times" and "bad times" in the U. S. is marked less so than that of corresponding conditions in Europe. The most important change in the last decade is the drift of immigrants from southern and eastern Europe, instead of from the north and northwest. The most frequent intermarriages are those between born Americans and immigrants from English Canada.

Fletcher (A. C.) Preparation of Indians for citizenship. (So. Wknn., Hampton, Va., 1905, xxxiv, 425-428.) There is "ample proof of the capacity of the Indian to become an enlightened citizen of the United States." The "agency system" and the reservation have not taught the Indian the real duties of citizenship or made the most of him for it. Schools and the establishment of the Indian court of offenses have brought about good results.

France (J. J.) Study and prevention of tuberculosis among colored people of Virginia. (Ibid., 494-498.) Discusses statistics; argues that the negro's greater susceptibility to tuberculosis, like that of white women as compared with the white men, is largely due to urban indoor labor, insufficient food, scant clothing, etc. Manchester, Va., is alone in reporting a higher death rate from tuberculosis for whites (3.30 per thousand) than blacks (2.20).

Golder (F. A.) Aleutian stories. (J. Amer. Folk-Lore, Boston, 1905, xviii, 215-222.) English texts of 5 tales: The sad woman, the woman who was fond of intestines, the man and woman who became sea-otters, a sea-otter story, the brother and sister who became hair-seals.

Hamy (E.-T.) Deux pierres d'éclair (pedras de corisco), de l'Etat de Minas-

Geraes, Brésil. (J. Soc. d. Amér. de Paris, 1905, N. S., II, 323-325, 1 fig.) Describes two "thunder stones," — flint hatchets of the old Indians of Minas Geraes, found in digging a ditch at Los Tranqueros. Native superstition attributes to them an origin from lightning and thunder.

Hrdlička (A.) Diseases of the Indians, more especially of the southwest United States and northern Mexico. (Washington Med., Ann., 1905, IV, 372-394.) Resumes data to be published in a forthcoming Bulletin of the Bureau of American Ethnology. Based on the author's personal observations during 6 expeditions, 1898-1905, among 38 groups or tribes of Indians, with the addition of facts from the reports, 1904-1905, of agency school physicians, etc., relating to 102 localities, and ca. 125,000 Indians (including some mixed bloods). Dr H. finds that, "on the whole, the health of the Southwestern and North Mexican uncivilized Indians is superior to that of the whites living in larger communities." The most unfavorable regions for the Indian are, at present, in the north, parts of Wisconsin, the Dakotas and Montana. Many interesting facts are given in this valuable paper concerning numerous diseases. Dr H. does not think pre-Columbian syphilis proved. Also, "in all probability, the proportion of the several main varieties of tuberculosis is not much if any larger among the Indians as a whole than it is among the poorer classes of whites as a whole." In the discussion Drs Lamb, Kober, Johnson, Morgan, and Gen. Forwood took part, and added facts from their own observations.

La Flesche (F.) The past life of the plains Indians. (So. Wknn., Hampton, Va., 1905, xxxiv, 587-594.) Treats of agriculture, buffalo-hunt and preparations for it, the "surround," preparation of meat and hides, harvesting, making bows, arrows, lances (teaching boys) and other weapons, etc. Describes one phase of Omaha life in the past.

de La Grasserie (R.) Renseignements sur les noms de parenté dans plusieurs langues américaines. (J. Soc. d. Amér. de Paris, 1905, N. S., II, 333-338.) Cites names of relationship in several Salishan languages (Skqómic, Bilqula, Stla'tl Emch, Shushwap, Kalispelm), with comments. These names refer to sex of relation spoken of, respective age

of two relations, degree of relationship, sex of intermediary relations, indication of whether intermediary relations are dead or living, relationship or alliance, sex of relation speaking.

Lapham (Julia A.) A glimpse at maps of the northwest territory. (Amer. Antiq., Chicago, 1905, XXVII, 121-126.) Notes on maps of 1670-71, 1681 (Marquette), 1684-8 (Franqueline), 1696, 1679, 1752, 1770, 1791, 1832, 1835, 1836. These maps are valuable for the sites and names of Indian settlements, rivers, lakes, etc., and the variants in spelling.

Lehmann (W.) Les peintures Mixteco-Zapotèques et quelques documents apparentés. (J. Soc. d. Amér. de Paris, 1905, N. S., II, 241-280.) Lists with description, historical sketch, bibliographic references, the group of picture-writings dominated by the *Codex Borgia* and influenced by Zapotec culture (*Codex Borgia*, *Codex Vaticanus B.*, *Codex Cospi*; *Codex Fajervary-Mayer*, *Codex Landi*; No. 20 of the Aubin collection) and picture-writing of Oaxaca, including Mixtec (*Codex Becker No. 1*, *Codex Columbinus*, *Codex Becker No. 2*, *Lienzo de Zacatepec*, *Lienzo de Amoltepec*, *Lienzo Vischer No. 1*, *Codex Yancuitan*), Zapotec (*Codex Vindebonensis*, *Codex Nuttall*, *Codex Bodleianus*, *Codex Selden No. 1*, *Codex Waackergotter*, *Codex Selden No. 2*, *Dorenberg Fragment*, *Codex Dehesa*, *Codex Baranda*, Map of Tehuantepec, *Lienzo de Huilotepec*, *Lienzo de Guevea*, *Lienzo de Santa Maria Chimalapa*, *Codex Alvarado*, *Lienzo de Petapa*), Cuicatec (*Codex Porfirio Diaz*, *Codex Fernandez Leal*), Mazatec (*Lienzo Seler I*), Chocho-Popoloca (*Lienzo Seler II*, *Codex of Santa Catarina Texupan*, *Annals of Quecholac*), Chinantec (*Survey of Xochitpec*, *Survey of Muagnia*), — 35 Mss. in all.

von Luschan (F.) Ueber ein Os supratympanicum beim Menschen. (Z. f. Ethnol., Berlin, 1905, XXXVII, 625-626.) Note on a well-marked occurrence of the *spina supra meatum* (Bezold) as a small independent bone in the skull of a Peruvian mummy from Puno.

Miller (K.) Surplus negro women. (So. Wknu., Hampton, Va., 1905, XXXIV, 522-528.) In the U. S. negro women exceed men by 54,347 (or 13 per 1000). In 15 cities (of more than 20,000

negroes) the female excess is 59,091 (making the ratio of women to men 118 to 100). In Chicago negro men exceed women in numbers. In Atlanta the ratio of women to men is 145 to 100. Training for domestic service is one solution of the problem.

Newton (E. E.) Impressions of the Navahos. (Ibid., 600-615.) Notes on experiences, etc., of wife of a school physician. The Navaho makes a good physical impression, is deeply superstitious, tenacious in adherence to the established order of things, an inveterate gambler, is hippophile and philocamine, is an excellent artisan, and possesses intelligence of a good order. His future lies in the education of his character.

Peet (S. D.) Stone relics in California. (Amer. Antiq., Chicago, 1905, XXVII, 169-176, 3 figs.) Based chiefly on Holmes, *Anthropological Studies in California* (Rep. U. S. Nat. Mus., 1900). Refers also to Mercer's *Exploration of Durham Cave in 1893* (Publ. Univ. of Penn., 1897). In the California province art in stone is practically uniform at all points. Variations in local resources account largely for differences existing.

Rivet (—) Les indiens Colorados. Récit de voyage et étude ethnologique. (J. Soc. d. Amér. de Paris, 1905, N. S., II, 177-208, 5 pl., 1 fig.) Treats of visit to the Colorado Indians of western Ecuador in 1903. Dress and ornament, body-painting (red and black, applied with finger), mutilations (facial depilation, nose-piercing, cranial deformation), dwellings and furniture, sugar-cane press, *marimba*, agriculture, food and drink, hunting and fishing, position of woman (neither servant nor slave), family life, marriage, alcoholism (abuse of *nepi*), death and burial, religion, "governor" (religious and civil authority lacking), visit of Quito priest, Indian character (he has not yet been made a slave with low and miserable soul). The Colorado is not idle *per se*, and he is intelligent, and about his only vice is drunkenness. Twenty years ago the Colorados numbered more than 700; to-day 350, and alcoholism and small-pox are killing them off.

Schenk (A.) Note sur un crâne humain ancien trouvé au Tennessee, près James-Town, États-Unis. (R. de l'Éc. d'Anthrop. de Paris, 1905, XV, 156-162, 3 figs.) Describes, with measurements,

- an ancient Indian skull, found (with some flints and fragments of rude pottery) at a depth of 5 feet below a bed of ashes and animal bones in a cave near Jamestown, Tennessee, and presented to the Anthropological Museum of Lausanne in 1880. The cephalic index is 78.73. S. thinks the skull belongs with the "mound builders."
- Seler** (E.). Photographie eines hervorragenden Stückes aus dem mexikanischen Altertume. (Z. f. Ethnol., Berlin, 1905, XXXVII, 527-536, 12 figs.) Describes a female head of jadeite, with hair interwoven with snakes. S. considers it to represent Xochiquetzal.
- Solberg** (O.). Ueber Gebräuche der Mittelmesa-Hopi (Moqui) bei Namengebung, Heirat und Tod. (Ibid., 626-636.) Treats of the ceremonial cleansing of the child and the name-giving (the ceremony lasts from an hour to an hour and a half); marriage and ceremonies connected therewith (usually 40 days); death and burial, etc., from observations in the pueblos of Mishongnovi and Shipaulovi of the Tusayan (Moqui, or Hopi) stock.
- Stoddard** (H. L.). Phallic symbols in America. (Amer. Antiq., Chicago, 1905, XXVII, 281-294, 8 figs.) General discussion of the correlation of the solstitial and phallic symbols of America, to those found in Asia, Europe, and Africa. Reference is made to the "Yoni symbol" from Menard's mound, the altar at Copan, an idol from Nicaragua, etc. Author finds in America "Babylonian sun-dial and Teraphims."
- Stone age collection.** (Narrag. Libr. Ass. Bull., Peace Dale, R. I., 1905, No. 2, 37-40, 7 pl.) Brief account of two flint scrapers from Mildenhall (Suffolk), England; a flint spearpoint from Wisconsin; a rubbing-stone from Antrim, Ireland; six obsidian "razors" from Honduras; flint knife, gouge, and scraper from Denmark; a small collection of fine chalcedony and varying flint arrowpoints from the beach at Santa Barbara, Cal.; an Australian spalling tool of hard flint mounted in asphalt and a glass arrowhead made with it; two flint objects of uncertain use from California.
- Superstitions of the Indians.** (Amer. Antiq., Chicago, 1905, XXVII, 132-136.) Reprinted from the *Chicago Inter-Ocean* for July 22, 1900. Gives items of superstition from the Catarina Indians concerning Monequanish, "the enchanted land," an upland region in the San Pedro Martin range of Lower California. Also items of superstition relating to Taupititz peak in S. California from the San Jacintos and Salobas.
- Thorndike** (T. W.). A plea for the establishment of a commercial game and fur preserve in the Northwest. (Rep. Intern. Geogr. Congr., Wash., 1904, VIII, 870-891.) Contains at pages 884-885 notes on the Indians (ca. 15,000) of "the north country," or "muskeg region," south of Hudson Bay. The admixture of white blood is very large, and the "breeds" outnumber the full-bloods,—the whites are mainly Scotch, with some French Canadians. The future welfare of the Indians depends on the preservation of the fur. The Canadian preservation system is superior to the American, but what is wanted everywhere, for Indians, animals, land, is not reservation but preservation.
- Thouar** (A.). En el pais del caucho. (An. de Instr. Prim., Montevideo, 1905, II, 883-889, 3 figs.) Treats of the Acre region of Brazil,—an india-rubber country. Refers briefly to the Araonas and Tacanas. Translated from the French.
- Upham** (W.). Mounds built by the Sioux in Minnesota. (Amer. Antiq., Chicago, 1905, XXVII, 217-223.) Cites evidence (from Capt. J. Carver, etc.) that the mounds on Dayton's bluff, in the eastern portion (Mounds Park) of the city of St Paul, were built for sepulture by the Sioux, partly in Carver's time (less than 150 years ago) and partly much earlier. Other mounds in Minnesota may also have been made by the Sioux (e. g., at Red Wing).
- Wake** (C. S.). Asiatic ideas among the American Indians. (Ibid., 153-162, 189-196.) By reference to ideas in Mazdaism, Mithraism, etc. (the "Great Medicine" of the Indians "answers somewhat to Mithra"; Persian *fravashism* agrees with American Indian totemism; Arapaho myths have content resembling Oriental, especially Mithraic legends; American Indian "mystery" has analogies with Oriental), author seeks to establish "contact between American and Asiatic ideas," but not successfully.
- Williamson** (G.). Superstitions from Louisiana. (J. Amer. Folk-Lore, Boston, 1905, XVIII, 229-230.) Enumerates 35 items, chiefly from negro informants, concerning good and bad luck, etc.

ANTHROPOLOGIC MISCELLANEA

Indian Ceremonies in Oklahoma and Indian Territory. — The following list of Indian tribes and localities where ceremonies and dances take place and may be witnessed is arranged for the benefit of students or investigators within reach of points in Oklahoma and Indian Territory. In most cases the dances are repeated year after year in the same places, which are accessible to visitors on horseback. Each year celebrations occur approximately within the week preceding or the week following the dates given below. For example, the Sand Creek Yuchi, Creek Nation, Indian Territory, held their annual ceremony from July 17 to 19 in 1904, and July 21 to 23 in 1905. It ought to be added, however, that the Yuchi chiefs have decided to discontinue their rites owing to intoxication and disorder among the young men at the ceremonies. The list was prepared while the writer was engaged in field work for the Bureau of American Ethnology and the American Museum of Natural History.

Creeks (Muskogi). Annual Green-corn and New-fire ceremony.

Hickory Ground town, July 2-6, near Henryetta, Indian Ter. (Crazy Snakes).

Arbeka town, July 21—, Tulledegee Hills, near Henryetta.

Tuskegee town, August 4—, near Tuskegee (irregular).

Yuchi. Annual Corn and New-fire ceremony.

Sand Creek, July 21-23, near Bristow, Indian Ter. (probably discontinued).

Polecat settlement, July 29-31, near Kellyville, Indian Ter.

Choctaw. Cry or Lamentation.

July 27, Siloam, near McCurtain, Indian Ter.

Shawnee. War-dance.

August 26—, near Shawnee, Oklahoma.

August 10-14, near Tulsa, Indian Ter. (Upper Shawnees, also with Tulsa town Creeks).

Wyandot, Seneca, Peoria, and Miami. War-dance, barbecue, and games.

August 15-20, near Wyandot, Indian Ter.

Ponca.

August 12-17, 101 Ranch, near Bliss, Oklahoma.

Pawnee, Cheyenne. Medicine-arrow ceremony.

August 14-20, near Pawnee, Oklahoma.

Sundays during summer, mescal-eaters dance about twelve miles south of Pawnee, Oklahoma.

Cheyenne. Sun-dance.

July 6, near Clinton, Oklahoma.

FRANK G. SPECK.

Origin of the Name Navaho.—In the second valley south of the great pueblo and cliff village of Puye in the Pajarito Park, New Mexico, is a small pueblo ruin known to the Tewa Indians as Navahû, this being, as they claim, the original name of the village. The ruined villages of this plateau are all Tewa of the pre-Spanish period. This particular pueblo was well situated for agriculture, there being a considerable acreage of tillable land near by—far more than this small population would have utilized. The old trail across the neck of the mesa to the north is worn hip-deep in the rock, showing constant, long-continued use. I infer that these were the fields of not only the people of Navahû but also of the more populous settlements beyond the great mesa to the north where tillable land is wanting. The Tewa Indians assert that the name "Navahû" refers to the *large area of cultivated lands*. This suggests an identity with *Navajô* which Fray Alonso de Benavides, in his Memorial on New Mexico published in 1630, applied to that branch of the Apache nation ("Apaches de Navajô") then living to the west of the Río Grande, beyond the very section above mentioned. Speaking of these people Benavides says: "But these [Apaches] of Navajô are very great farmers [*labradores*], for that [is what] 'Navajô' signifies—'great planted fields' [*sementeras grandes*]."¹

These facts may admit of two interpretations. So far as we know, this author was the first to use the name Navaho in literature, and he would have been almost certain to have derived it from the Pueblos of New Mexico among whom he lived as Father Custodian of the province from 1622 to 1629, since the Navaho never so designated themselves. The expression "the Apaches of Navajô" may have been used to designate an intrusive band that had invaded Tewa territory and become entrenched in this particular valley. On the other hand, the Navaho, since the pastoral life of post-Spanish times was not then possible to them, may have been so definitely agriculturists, as Benavides states (although he did not extend his missionary labors to them), and have occupied such areas of cultivated lands, that their habitat, wherever it was, would have been known to the Tewa as Navahû, "the place of great planted fields."

If the first interpretation is correct, it would doubtless be verified by archeological evidences at the ruin of Navahû. It would seem at any rate that the Tewa origin of the tribal designation *Navaho* is assured.

EDGAR L. HEWETT.

¹ Benavides' Memorial in *Land of Sunshine*, Los Angeles, Cal., 1901, vol. XIII, no. 6, p. 441.

Philippine Ethnological Survey. — In the recent reorganization of the Philippine Government certain bureaus were combined in the hope of reducing the cost of administration. One of the bureaus to be combined is the Ethnological Survey which is working among the native tribes of the islands. The Survey is to be called the Division of Ethnology of the Bureau of Education. Dr Merton L. Miller has been made chief of the division.

Measurements of Igorotes. — Through the courtesy of Mr R. Schneidewind, manager of the Filipino Exhibition Company's Igorot village recently displayed in San Francisco, opportunity has been afforded the Department of Anthropology of the University of California to take measurements of eighteen men and seven women from Bontoc, Tacucan, and several other Igorot pueblos. These measurements are given herewith. The name of each individual is followed by that of his pueblo and his age as estimated by Mr Schneidewind. Terms and numbers in parentheses give respectively a phonetic rendering of names and the author's estimate of the individual's age. The measurements are in millimeters. Those of height of shoulder, height of middle finger from the ground, and length of forearm, are averages of measurements on the two sides. Three of the younger men, Antero, Felingao, and Ugoay, were measured at St Louis in 1904 and thus afford a standard of comparison for the author's metrical accuracy. The averages of the men, especially in the body measurements, are probably lowered somewhat by the preponderance of very young men. This conclusion is confirmed by the fact that the average stature, 1486 mm., of the seven women measured, all of whom were fully adult, is nearly 96 percent of the average of the men, 1550 mm. The average cephalic and nasal indices, respectively 78.5 and 100, are almost identical for the men and the women. The color references are to the reproduction of Broca's color tables given in Dr Hrdlicka's recent *Directions for Collecting Information and Specimens for Physical Anthropology*, published in Bulletin 39 of the United States National Museum. Where two numbers are given, the skin partook of the color of both, but more nearly resembled the first. The average tint seemed to be intermediate between 25 and 31, somewhat darker than the former, somewhat less red than the latter. There was almost always some red tinge. The color was observed on the upper inner portion of the forearm. The women gave the impression of being darker than the men.

A. L. KROEBER.

Some Suggestions Concerning Anthropological Bibliography.¹ —

The appearance of the *Proof Sheets of a Bibliography of the North American Indians*, by James Constantine Pilling (Washington, 1885), and the subsequent bibliographies of separate linguistic stocks by the same compiler, marked an era in anthropological bibliography in America. The *Handbook of the Indians*, now in process of publication by the Bureau of American Ethnology, is another work of great bibliographic value, which is unique in character. The bibliography of language and of general ethnology is thus happily begun, but the other departments of anthropology have hardly fared so well, though the necessity for good bibliographies is evident enough. Some of the bibliographical desiderata may be listed as follows :

1. The continuation and completion of the series of bibliographies of Linguistic Stocks begun by the late J. C. Pilling, and its extension to Mexico, Central America, and South America.
2. The compilation of a bibliography of the Physical Anthropology of the American Indians.
3. The compilation of bibliographies of American Indian Art, Political and Social Institutions, and other individual subjects worthy of extended treatment.
4. The compilation of an authoritative and adequate bibliography of Religion, Mythology, and Folk-lore.
5. The compilation of a bibliography of "American Indian Contact with the Whites."
6. The compilation of a bibliography of Bibliographies relating to investigators of and writers about the American Indians.
7. The establishment of a department of Bibliography of books in, for example, the *American Anthropologist*, with notes of the briefest sort, stating whether the book is good, bad, or indifferent; whether it contains anything new and what that new thing is, etc.

The bibliographies of linguistic stocks may be continued by the Bureau of American Ethnology, under whose auspices the Pilling series was initiated. If not, some other means of publishing them might be devised — possibly in some of the anthropological journals.

¹ This brief report on the needs of Anthropology in the bibliographic field was prepared by Dr Chamberlain for presentation at the Ithaca meeting of the American Anthropological Association, and is here published in order that further suggestions may be made by those interested in the subject. A list of the writings of living American anthropologists will be published in the *American Anthropologist*, the first instalment of which will probably appear in the next number. — EDITOR.

Some of these bibliographies, e. g., that concerned with Physical Anthropology, might be published as supplements to the *American Anthropologist*, or other periodicals now existing.

Certain individuals are perhaps at the present moment in the possession of such lists, made for their own use, as would enable them, with little difficulty, to complete the bibliography of one or more particular topics.

The various anthropological Museums might issue as part of their publications the bibliographies of Art, Archeological topics, etc. The bibliography of Bibliographies might appear as an article in some anthropological journal or other publication, or be issued separately by some scientific society, e. g., the American Anthropological Association or the American Philosophical Society.

The difficulty with Reviews has always been to procure adequate criticism by competent experts. Naturally one's colleagues are rather loth to diagnose acutely his productions. But good reviews are absolutely necessary for the welfare of anthropological science. A book-bibliography of the kind indicated, to be supplemented by authoritative discussions of the more important works, would be very useful and valuable.

The writer has for some years past been responsible for the reviews of Periodical Literature in the *American Anthropologist*, and the kind appreciation of this work by his colleagues and other students of anthropology all over the country has proved its usefulness and, at the same time, encouraged the compiler, who has now so familiarized himself with the subject that the labor has ceased to be burdensome to a degree. He would repeat here the request that authors of papers and monographs send copies of these to him at the earliest possible moment. Those so doing have aided much in the making of the bibliography. The same may be said of the more special (and more extended in detail) "Record of American Folk-lore," etc., published in the *Journal of American Folk-Lore*.

A final suggestion might be made, namely, that of a series of bibliographies of special topics in anthropology, something like the "Temple Series" of the works of Shakespeare — at once handy and authoritative. This would provide for bibliographies of more subjects and tend to promote reasonable uniformity.

ALEXANDER F. CHAMBERLAIN.

Saint Louis Public Museum. — The new Saint Louis Public Museum, which, like the Field Columbian Museum of Chicago, is an outgrowth of a great exposition, has entered on its work and in a neat pamphlet (Bulletin 1, December, 1905) sets forth its plan and purpose as

"an educational institution designed to diffuse practical knowledge by approved scientific methods among the people of the city and state." It is the aim of the Museum, which is temporarily housed in the Fine Arts building of the Louisiana Purchase Exposition, to have four departments: Geography, Geology, Biology, and Anthropology, the first being a departure from customary museum arrangement. The Department of Anthropology "is outlined to illustrate by means of casts, sculptures, paintings, photographs, and other preparations (and eventually living specimens) the types of mankind native to the continents of the globe; together with aboriginal clothing, houses, utensils, implements, weapons, decorative devices, ceremonial objects, etc., all so arranged as to indicate the trend of progress, both among particular tribes and peoples and in general throughout the world. As the museum grows, it is designed to devote a division of this department to Ethnology, i. e., to the special representation of race types; another to Archeology, or human relics of prehistoric times; and a third to Technology, or Industries, illustrated not only by devices and products, but by processes. It is planned to give special attention to the exhibition of primitive Arts and Crafts, sometimes with the help of primitive artisans—this to enhance the interest of the exhibits, and at the same time to reveal the long course of that manual development which forms the basis of modern industries and finds its highest expression in modern invention. Among the industrial products suitable for museum display are implements, ranging from rude stone to finest steel; clothing fabrics, from leaves of plantain and fig and skins of beasts to finest textiles; houses and house materials, from shrubby bowers to steel, concrete, terra cotta, and artificial stone; utensils, from primitive baskets and earthenware pots to aluminum and porcelain ware; spinning and weaving devices, from simple structures of sticks to modern spinning-jennys and mechanical looms; and decorative devices, from the simplest symbols to the most artistic forms and figures. It will not be needful for the Public Museum to trace the development of esthetic motives, since this is the function of a neighboring institution; yet it is needful to illustrate the development of industrial motives with so much of the artistic concepts as they necessarily involve. It is through industrial devices that mankind makes conquest of the natural world; and the motto of the sub-department of Technology may well be, *What Man hath wrought*."

Already commendable interest is shown in the new institution by the citizens of Saint Louis, as manifested by the attendance during October and November, which is estimated at 2,000 visitors daily. The material

in the Museum on September 20 consisted of residua from the Exposition of 1904, valued at about \$500,000. In October the Mrs Dyer collection of Indian basketry, beadwork, featherwork, etc., was installed as a loan exhibit, and later the Sosnovec collection of prehistoric objects from local sites was similarly installed. The first Bulletin contains an account of the organization of the Museum, the articles of agreement, the officers and committees, a summary of its early work and its present needs, a statement of "some commercial benefits of museums," etc. Its principal officers are: A. C. Stewart, president; Amedee B. Cole, L. D. King-land, George M. Wright, H. H. Wernse, and Pierre Chouteau, vice-presidents; George T. Parker, secretary; William H. Thomson, treasurer; W J McGee, director of the Museum. The Bulletin is sent free to members of the corporation and to heads of coöperating institutions.

William Clement Putnam. It is with regret that we record the death of William Clement Putnam at his home in Davenport, Iowa, on January 13th. Mr Putnam, son of the late Charles E. and Mary Duncan Putnam, was born in Davenport, June 27, 1862, and was graduated from the local High School in 1880, and with high honors from the law department of the University of Iowa in 1883. Returning to his native city he began the practice of law with his father under the firm name of Putnam & Putnam, which continued until the father's death in 1887, after which time he conducted the practice alone. Early in life Mr Putnam manifested a literary taste, becoming an authority on such widely distinct historical characters as Shakespeare and Blackhawk; and his ability as a writer is exemplified by an admirable sketch of his father's life and work, published as a memorial by the Davenport Academy of Sciences. To this institution, as mentioned in these pages at the time of the death of Mary Duncan Putnam, the mother, the Putnam family have ever shown rare devotion. Indeed, during Mr W. C. Putnam's last brief illness he presented to the Academy a collection of basketry and dictated from his death-bed a report as chairman of its finance committee which communicated the gratifying news that the Academy was entirely out of debt. But the greatest indication of Mr Putnam's devotion to the Davenport Academy and to the city of his birth is expressed in his last will and testament, by which he bequeathes his estate, estimated, it is said, at \$700,000, to his sister and four brothers in trust. After the payment of certain modest annuities to these members of his family and the cost of administering the estate with the object of ultimately increasing its value, Mr Putnam's will provides that the residue of the net income shall

be added to the Putnam Memorial Fund of the Davenport Academy of Sciences; and that on the death of his sister and brothers the entire estate, including the choicest private library in Iowa and a noteworthy art collection, shall pass to the Academy in its entirety.

William Clement Putnam was beloved wherever he was known. He was a man of extreme refinement, charity, and public spirit, a lawyer of rare ability, and a leader in the business world. Notwithstanding his varied interests he was never too busy to find opportunity to labor for the institution in which he had his heart and which through his munificence and that of the Putnam family will some day be a great power in the diffusion of knowledge.

A Remarkable Stone Ax.—What is believed to be the largest Indian stone ax in existence has recently been placed on exhibition among the collections of the Missouri Historical Society, at St. Louis, by its president, Dr C. A. Peterson, by whom the specimen was procured as a loan. This noteworthy object is of granite; it measures 28 inches in length, 14 inches in width, and $11\frac{1}{2}$ inches in thickness, and weighs more than 300 pounds. The ax was obtained by George M. Huss, of Birchwood, Wisconsin, from an eminence in one of the wildest sections of the territory still occupied by the Chippewa Indians of Lac Court Oreilles and Lake Chetac, in Sawyer county, Wisconsin. When found the pointed end was embedded in a small mound of bowlders and pebbles, with the body and head of the ax exposed, the whole apparently forming a shrine or altar. In shape the ax resembles a tomahawk pipe; its upper end or head is slightly hollowed out and in this depression was ceremoniously placed a small quantity of tobacco. A well-beaten moccasin trail led up the incline of the eminence on which the shrine stood, indicating that the place had long been used for religious purposes. The ax for a time formed the keystone of a chimney, but was removed temporarily for a loan exhibit. According to Chippewa tradition the ax has been held in veneration by these Indians from time immemorial. The object will remain in the care of the Missouri Historical Society until spring, when it will be returned to Mr Huss, who, it is hoped, will deposit it in some public museum rather than permit a repetition of the vandalism to which it was once subjected.

Dr Swan Moses Burnett died suddenly of heart failure at Washington city, January 18, 1906. Dr Burnett was born at New Market, Tennessee, March 16, 1847, was graduated from Bellevue College Medical Department in 1870, and in 1873 began the practice of his profession at Knoxville, Tenn., where he married Frances Hodgson, who already had

achieved a reputation as a novelist. Two years later they removed to Washington, where Dr Burnett soon became a leading practitioner in diseases of the eye and ear. He was professor of ophthalmology and otology in the medical department of Georgetown University from 1876 and in the Washington Post-graduate Medical School from 1879, and was a member of the staff of three hospitals. He was also a member of the Washington Academy of Sciences and the Philosophical Society of Washington, and for many years was actively interested in the Anthropological Society of Washington, before which he presented several papers noted for their scholarly treatment. Three of his articles appear in the *American Anthropologist*: A Note on the Melungeons (II, 347-349, 1889), The Modern Apotheosis of Nature (V, 247-262, 1902), Giuseppe Mazzini — Idealist: A Chapter in the Evolution of Social Science (N. S., II, 502-526, 1900). Dr Burnett was also the author of a *Treatise on Astigmatism*, and a contributor to medical text-books in the line of his specialty. In 1898, after several years of separation, Dr and Mrs Burnett were divorced, and in 1901 he married Miss Margaret Brady, of Washington, who survives him.

Publications of Dr V. Giuffrida-Ruggeri. — With the title *Esposizione della vita scientifica e riassunto delle pubblicazioni del dottor Vincenzo Giuffrida-Ruggeri* (Scanso, 1905, pp. 6) has been published a bibliography of the writings (exclusive of notes and reviews of anthropological literature) of Dr Giuffrida-Ruggeri, who took his degree in medicine and surgery at Rome in July, 1896, with a thesis *Sulla dignità morfologica dei segni detti degenerati*. Dr Giuffrida-Ruggeri spent three years (1897-99) in anthropological investigations of the craniological material in the Regio (Emilia) Asylum. In 1900 he became assistant to the professor of anthropology in the University of Rome, and, in June, 1902, docent in anthropology at the same institution. Dr Giuffrida-Ruggeri is at present also secretary of the Anthropological Society at Rome. His publications, as here listed, number sixty-seven. To the *Atti della Società Romana di Antropologia* he has contributed besides some two hundred reviews and abstracts of anthropological works. The subjects dealt with in his publications are chiefly anatomical (preponderatingly craniological), but embrace also such topics as: the passage from the paleolithic to the neolithic; Italian origins; variation in man and woman; human plasticity; the jargon of criminals, etc. Dr Giuffrida-Ruggeri is one of the best equipped of the younger generation of European anthropologists.

A. F. C.

Dr Richard Hodgson, secretary and treasurer of the American Branch of the Society for Psychical Research and a founder of the American Anthropological Association, died suddenly at Boston, December 21. Dr Hodgson was born in Melbourne, Australia, in 1855, and was graduated from Melbourne University (M. A., LL. D.) ; he also took a law course in his native city, and was graduated in mental and moral science at the University of Cambridge, England, later spending six months at the University of Jena. In 1882-83 Dr Hodgson lectured in a University extension course in the north of England ; was university lecturer at Cambridge in 1884-85 on Herbert Spencer's philosophy ; and from 1882 to 1887 was active in the investigations of the Society for Psychical Research in England. He has been a frequent contributor to the *Proceedings* of the Society, his most important articles being on Blavatsky's Theosophical Phenomena, Mal-observation and Lapse of Memory in Connection with Pseudo-spiritistic Phenomena ; A Case of Double Consciousness ; Indian Magic and the Testimony of Conjurors ; and The Trance Phenomena of Mrs Piper.

Dr Max Uhle, who for more than six years has been connected with the University of California as Hearst Lecturer in Peruvian Archeology and Field Director of Explorations in South America for the Department of Anthropology, has resigned his position to accept the directorship of the National Archeological Museum of Peru. Dr Uhle has just completed a second residence of two years in Peru for the University of California, in which period he was engaged in archeological excavations on the coast for some distance north and south of Lima, and in the interior. His work has been conducted with the aim of determining the sequence and relations of the various periods and types of civilizations in ancient Peru, and the results of his six years' labors will be published by the Department of Anthropology of the University. His explorations have resulted in the formation of large collections, the value of which will be enhanced by the fact that a law forbidding the exportation of antiquities, or archeological explorations by foreigners except for the benefit of the National Museum, became operative in Peru on the 1st of January, 1906.

Dr Friederich S. Krauss, the versatile and tireless ethnologist and folklorist of Vienna, writes encouragingly of his recent work. His latest undertaking is a Folk-lore Library, to appear in a series of booklets of convenient size, of which the first two are already in press. Several of the volumes will treat of racial humor, of which Dr Krauss himself will handle German, Servian, and Gypsy. The second part of his great work,

Anthropophyteia, is now in print, with an exceptionally varied table of contents, together with four more volumes of his series of *Romanische Meistererzähler*. His *Serbische Meisterwerke* has now reached the fifth number. He has also brought out within the last year (1905), in collaboration with Eduard Kulke, *Um holder Frauen Gunst*, an artist romance of the Italian renaissance, in which a peasant boy, of rare but terrible genius, after attaining the pinnacle of success, dies by the hand of a jealous nobleman in the very moment of unveiling his masterpiece. All of his works are from the press of the Deutsche Verlagsactien-gesellschaft of Leipzig.

JAMES MOONEY.

California Branch of the American Folk-Lore Society. — The fifth meeting of the California Branch of the American Folk-Lore Society was held in the Unitarian church, Berkeley, Thursday, December 7, 1905, at 8 P. M. Prof. John Fryer presided. Mrs. M. S. Biven and Miss G. E. Barnard, both of Oakland, were elected to membership. Prof. Wm. F. Bade delivered a lecture on "Hebrew Folk-lore," based primarily on folk-lore elements in the Book of Genesis. At the conclusion of the lecture a vote of thanks was tendered Professor Bade, as also the trustees of the Unitarian church. One hundred and fifty persons attended the meeting.

The sixth meeting of the California Branch was held in the Unitarian Church, Berkeley, February 13, 1906, at 8 P. M. Dr. William Popper, who has recently become connected with the University of California, spoke on "Superstitions of the Arabs," based on personal experiences during a residence in the Orient.

A. L. KROEBER, *Secretary*.

Berkeley Folk-Lore Club. — The second regular meeting of the Berkeley Folk-Lore Club during 1905-06 was held in the Faculty Club of the University of California, Tuesday evening, November 28th. President Lange called the meeting to order. Prof. H. A. Overstreet, Mr. A. H. Allen, and Prof. W. F. Bade, were elected to membership. Prof. F. B. Dresslar read a paper on "Some Studies in Superstition," based on superstitions known to and in part credited by advanced school students on the Pacific coast. Special attention was paid to the degree of credence given to superstitions and to the subject of mental preference for odd numbers. At its conclusion Professor Dresslar's paper was discussed by the members.

A. L. KROEBER, *Secretary*.

First Chair of Anthropology in South America. — The first chair of anthropology was established in 1905 in the Faculty of Philosophy and Letters at the University of Buenos Aires, the first appointee (September

2) being Dr Robert Lehmann-Nitsche, Director of the Anthropological section of La Plata Museum, who will continue to serve also in the latter capacity. At the close of 1903 Dr Lehmann-Nitsche delivered, with the consent of the faculty, a course of lectures on General Anthropology, and in the beginning of 1904, by request, another course on Paleoanthropology. Both of these courses were well attended, that of 1904 averaging 61 hearers. In 1905 the University decided to establish a regular chair of anthropology and to give the subject an official standing as a department in the curriculum of the Faculty of Philosophy and Letters. Of related departments American Archeology has been represented by Dr Samuel A. Lafone Quevedo and Dr Juan B. Ambrosetti.

A. F. C.

Missouri Historical Society.—The following officers have been reelected by the Missouri Historical Society to serve during the ensuing year: Dr Cyrus A. Peterson, president; W. K. Bixby, first vice-president; D. I. Bushnell, second vice-president; Charles P. Pettus, secretary; Alfred T. Terry, treasurer; Miss Louise Dalton, librarian. Judge Walter B. Douglas, James A. Reardon, J. M. Wulfin, V. Mott Porter, Malcomb Macbeth, and the five officers first named constitute the advisory board. The interest of the Missouri Historical Society in anthropological topics is shown by the fact that four of the ten members of its advisory board are members of the American Anthropological Association.

Lieut. Georg Friederici, already known for his historico-ethnologic studies, has been publishing in recent issues of the *Neue Militärische Blätter*, of Berlin, the German army and navy journal, some valuable papers on the use of mounted infantry, or, more properly, dismounted cavalry, in Europe and Asia from the earliest historic period down to the modern wars of Germany and France, including a general survey of the equestrian orders of ancient Greece and Rome and the Medieval period. The references quoted indicate a wide range of research and the subject is one which must appeal to every military man. JAMES MOONEY.

Dr Roland B. Steiner, of Grovetown, Georgia, a founder of the American Anthropological Association and well known for his work in local archeology and folk-lore, died at the City Hospital of Augusta, Georgia, January 13, aged sixty-six years. Dr Steiner's collection of archeologic objects was well known throughout the country, and many specimens collected by him have gone to enrich our larger museums. He wrote little or nothing on archeologic topics, but was an occasional writer on the folk-lore of the Southern negro, of whom, being a planter, he became a close observer.

THE SIXTH INTERNATIONAL CONGRESS OF CRIMINAL ANTHROPOLOGY will open at Turin on April 28, 1906. The following questions are proposed for discussion, and the communications presented will, as far as possible, be grouped round these as central themes: (1) the treatment of juvenile criminality according to the principles of criminal anthropology, to be introduced by M. von Hamel; (2) the treatment of female criminality, to be introduced by Dr Pauline Tarnowsky; (3) the relations of economic conditions to criminality, to be introduced by Professor Kurella; (4) the equivalence of the various forms of sexual psychopathies and criminality, to be introduced by Prof. C. Lombroso; (5) criminal anthropology in police organization, to be introduced by Professor Ottolenghi; (6) the psychological value of evidence, to be introduced by Dr Brusa; (7) prophylaxis and treatment of crime, to be introduced by Dr Ferri; (8) establishments for the perpetual detention of criminals declared to be irresponsible on account of mental defect, to be introduced by Professor Garofalo.

"ANTHROPOS."—A new octavo quarterly journal of 16 pages, published under the title *Anthropos* and under the editorship of Rev. W. Schmidt, S.V.D., of St Gabriel, Mödling, near Vienna, has made its appearance. Zaubrith & Co., 12 Bergstrasse, Salzburg, Austria, are the publishers. A prospectus announces that the new journal will supplement existing ethnographical and philological periodicals "by calling in the aid of an important factor of ethnographic and linguistic investigations, viz, missionaries," consequently its pages will contain contributions pertaining to "peoples of the whole world among whom missionaries work and will work." The subscription price is 12 marks.

DR CHARLES PEABODY of Cambridge and Dr G. B. Gordon of Philadelphia have been appointed delegates from the American Anthropological Association to the International Congress of Anthropology and Prehistoric Archeology to be held at Monaco in April, 1906. Mr David I. Bushnell Jr, assistant in archeology in the Peabody Museum of Harvard University, now in Europe making a special study of the American collections in European museums, has been appointed a delegate to represent the Peabody Museum at the same Congress.

AN ARCHEOLOGICAL MUSEUM, which, according to *Nature*, will devote special attention to Indo-Chinese matters, has been established by the French government at Pnom Penh, French Indo-China. The museum will be under the scientific control of the École française d'Extrême-Orient, the chief of the archeological department of which will act as director of the new museum.

THE AMERICAN MUSEUM OF NATURAL HISTORY has received as a gift from George S. Bowdoin, Esq., a member of the board of trustees, a valuable collection illustrating the culture of some of the tribes of Central Africa. The collection includes implements of warfare, idols, fetishes and masks, clothing, baskets, musical instruments, household utensils of bamboo, pottery and brass, bracelets, necklaces and household adornments of beads, shells, and brass. A gold bead weighing three ounces and seven carved ivory tusks from Ashantee are worthy of particular mention.

THE WISCONSIN ARCHEOLOGICAL SOCIETY is securing the custodianship, for school purposes, of the last group of Indian mounds remaining in Milwaukee. In the spring there will be held a joint meeting of the Wisconsin Landmarks Committees and of the Wisconsin Archeological Society, under the auspices of the latter. This meeting will be held among the mounds preserved on the campus of Carroll College, Waukesha. The Society will soon have completed the details of the preservation of the celebrated "man" mound at Baraboo.

MR CHARLES S. SPANG, formerly of Pittsburg, who recently died in Paris, where he spent the latter half of his long life, before his death requested his heirs to turn over to the Carnegie Museum, of Pittsburg, his collection of remarkably fine Etruscan pottery and Egyptian antiquities. In accordance with his wish these collections, which were made nearly fifty years ago by a gentleman whom Mr Spang employed to make excavations, have recently come into the custody of the museum.

IT IS REPORTED by *Science* that the committee appointed to carry the proposal of a memorial to Rudolf Virchow into effect has now a sum of \$20,000 at its disposal. Of this amount \$9,000 has been contributed by subscribers and \$11,000 by the city of Berlin. Three prizes, of the value respectively of \$750, \$500, and \$250, are offered for the best design of a memorial. Drawings must be submitted before April, 1906.

THE UNIVERSITY OF OXFORD has established a Diploma in Anthropology, awarding a certificate of merit after written and practical examination at the end of a course of study of not less than a year in residence and under supervision.

PEABODY MUSEUM, Harvard University, has recently acquired, by gift of Mr L. H. Farlow, a fine collection of Indian relics from the northern coast of America, southern Alaska, British Columbia, and northern California.

DURING HIS recent visit to New Orleans to attend the meeting of the American Association for the Advancement of Science, Mr George H. Pepper, of the American Museum of Natural History, obtained for George G. Heye, Esq., of New York, the archeological collection of the late Dr Joseph Jones.

MRS PHOEBE HEARST has presented to the California State University her archeological and anthropological collection from all parts of the world. It has cost more than \$400,000, and with it she presents to the university \$60,000 for the maintenance of a department of anthropology. — *Science*.

YALE UNIVERSITY has received from two anonymous donors a gift of \$75,000, which, subject to certain annuities, will be used to found a lectureship on the interrelation of religion, science, and philosophy.

MR EDGAR L. HEWETT, who holds the fellowship of American archeology in the Archaeological Institute of America during 1906, has departed for Mexico where he will spend several months in field study.

DR L. FROBENIUS, the well-known German ethnologist, has undertaken an expedition to the region of the Kasai for the study of the native tribes of that part of Africa.

AT THE Ithaca meeting, held in December, Dr A. L. Kroeber of the University of California was elected president of the American Folk-Lore Society.

PROFESSOR KARL VON DEN STEINEN, of Berlin, has been elected an honorary member of the Anthropological Institute of Great Britain and Ireland.

AMERICAN ANTHROPOLOGICAL ASSOCIATION

PROCEEDINGS OF THE ITHACA MEETING

DECEMBER 27-29, 1905

The sessions of the American Anthropological Association and of the Council were held in the Botanical Lecture Room, Sage College, Cornell University, December 27-29, 1905. Prof. Franz Boas, Senior-Vice-president, presided in the absence of the President, Prof. F. W. Putnam.

MEETINGS OF THE COUNCIL

Members of the Council present were Messrs Boas, Bowditch, Dixon, Gordon, E. L. Hewett, Hyde, and MacCurdy.

The minutes of the special meeting held in San Francisco were read and approved. The report of the Treasurer was read and referred to the Auditing Committee. The Special Committee on program for the International Congress of Americanists to be held in Quebec, September 10-16, 1906, reported progress through its chairman, Dr George Grant MacCurdy.

The Committee on Nominations appointed by Professor Boas consisted of Dr MacCurdy (chairman), Mr Hewett, and Mr Hyde.

New members were elected as follows: Mr Charles M. Bean, Dr D. D. Berolzheimer, Mr H. L. Broomall, Mr E. S. Curtis, Dr G. V. N. Dearborn, Mrs M. C. B. Hoover, Dr Berthold Laufer, Mr J. A. Reardon, Mr Edward Sapir, Mr H. E. Sargent, Dr H. W. Shimer, Dr A. W. Stirling, Mr Erastus Tefft, Dr H. M. Whelpley, Prof. B. G. Wilder, Mr J. H. Wilson, Mr J. M. Wulfin.

Moved that a Committee on Policy be appointed by the President to represent the Association at the Council of the American Association for the Advancement of Science. Carried. The President subsequently appointed Messrs Boas (chairman), Bowditch, Dorsey, Hodge, Kroeber, McGee, and Peabody to constitute this committee.

Moved that the President be empowered to appoint delegates to the International Congress of Anthropology and Prehistoric Archeology which will be held at Monaco, April 16-21, 1906. Carried. (Dr Charles Peabody and Dr George Byron Gordon were subsequently appointed delegates to the Congress.)

The report of the Committee on Nominations was read and approved, the officers recommended for the ensuing year being as follows:

President: Prof. Frederic W. Putnam, Cambridge.

Vice-President to serve four years: Prof. Franz Boas, New York.

Secretary: Dr George Grant MacCurdy, New Haven.

Treasurer: Mr B. Talbot B. Hyde, New York.

Editor: Mr F. W. Hodge, Washington.

Members of the Council to serve four years: Charles Peabody, James Mooney, J. D. McGuire, Berthold Laufer, Livingston Farrand, Frank Baker.

Committee on Program: G. G. MacCurdy, F. Boas, F. W. Hodge, A. L. Kroeber.

Committee on Finance: B. T. B. Hyde, Stanley McCormick, G. G. MacCurdy, W. H. Furness, 3d.

Auditing Committee: R. B. Dixon, E. L. Hewett, G. B. Gordon.

Committee on Publication: F. W. Putnam, Chairman, ex-officio; F. W. Hodge, Secretary, ex-officio; Juan B. Ambrosetti, Museo-Nacional, Buenos Aires, Argentina; Frank Baker, Washington; Franz Boas, New York; David Boyle, Department of Education, Toronto; Alexander F. Chamberlain, Worcester, Mass.; Alfredo Chavero, City of Mexico; Stewart Culin, Brooklyn; George A. Dorsey, Chicago; J. Walter Fewkes, Washington; Alice C. Fletcher, Cambridge; W. H. Holmes, Washington; H. von Ihering, São Paulo, Brazil; A. L. Kroeber, San Francisco; Rodolfo Lenz, Santiago de Chile; W J McGee, St Louis; Charles Peabody, Cambridge. (Dr G. B. Gordon, of the University of Pennsylvania, has subsequently been appointed.)

The following invitation to hold the next annual meeting of the Association in Washington, D. C., was read and referred to the Committee on Policy:

ITHACA, N. Y., December 27, 1905.

TO THE PRESIDENT AND EXECUTIVE COMMITTEE OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION.

Gentlemen: The Executive Committee of the Archaeological Institute of America voted last evening to accept the invitation of the Washington Society of the Institute to hold its next general session in Washington during the Christmas holidays in 1906. They also authorized the Secretary *pro tempore* to extend an invitation to the American Anthropological Association and the American Philological Association to hold their meetings in Washington jointly with the Institute.

The George Washington University has extended to the three societies the courtesies of the institution and the use of its buildings for their sessions.

In behalf of the Executive Committee of the Institute I beg to express the hope that the American Anthropological Association will vote to hold their next meeting in Washington.

Respectfully yours,
MITCHELL CARROLL,
Secretary pro tem. for Exec. Com'tee.

A closer affiliation with the Archæological Institute of America relative to membership dues was proposed by the Secretary and, by a vote of the Council, was referred to the Committee on Policy.

A communication from the Colorado Society of the Archæological Institute of America, requesting that the Association pass resolutions endorsing the Bill of Representative Hogg of Colorado, creating the Mesa Verde National Park, was read by Mr E. L. Hewett, who moved that it be referred to the Committee on the Preservation of American Antiquities with power to act for the Association. This Committee, at its meeting on the evening of December 28, voted to recommend legislation that would preserve the ruins of the Mesa Verde district, but did not pronounce in favor of any particular bill.

BUSINESS MEETING OF THE ASSOCIATION

Election of Officers

Moved that the Secretary be instructed to cast a unanimous ballot for the officers recommended in the foregoing report of the Nominating Committee and approved by the Council. Carried.

Reports of Committees

Committee on American Archeological Nomenclature. Dr Charles Peabody, chairman, reported progress and asked that the Committee be continued.

Committee on Nomenclature of Indian Linguistic Families North of Mexico. Mr F. W. Hodge, chairman, submitted the following preliminary report, which was read by the Secretary:

Your committee, appointed at the meeting of the Association held at Berkeley, California, on August 21st last, "to report at the next regular meeting on the most desirable nomenclature for the Indian linguistic families north of Mexico," beg leave to say that owing to the importance of the subject and the difficulty of discussing the questions involved by reason of the wide separation of its members, have not yet found it practicable to reach such conclusions on all the points at issue as will warrant the presentation of a final report at the present time. It may be said, however, that a majority of the Committee are in favor of a radical change in the present system as well as in

the nomenclature itself. There has not been sufficient time, however, to collate all the suggestions made and to submit them to the individual members of the Committee for discussion.

I therefore beg to recommend that the Committee be continued and that it be instructed to present at the next regular meeting a final report on the subject. Should this recommendation be approved, it may be deemed advisable by the Committee, in conjunction with the Committee on Publication, to publish in the *American Anthropologist* the report of the majority as finally agreed upon, in order that full opportunity may be given members generally to openly discuss the recommendations proposed before final action by the Association is taken.

Respectfully submitted,

F. W. HODGE, *Chairman*.

The Committee was continued.

Committee on the Preservation of American Antiquities. Mr E. L. Hewett reported progress. On his recommendation the Committee was continued. As Mr Hewett's paper, to be read later before the joint meeting of the Association with the Archaeological Institute of America and the American Philological Association, would deal at length with the work of this Committee, discussion of the report was postponed until the joint meeting of the three societies and the meeting of the Joint Committee.

Auditing Committee. Dr Dixon, chairman, announced that the Committee had found the accounts of the Treasurer to be correct and moved the adoption of the latter's report, which follows:

Report of the Treasurer

RECEIPTS

Balance from 1904.....	\$	858.77
Anthropological Society of Washington, for subscription to the <i>American Anthropologist</i>		391.66
American Ethnological Society, for subscription to <i>American Anthropologist</i>		150.63
Annual dues		915.00
Annual subscriptions to <i>American Anthropologist</i> , Vol. VII.....		668.59
Sale of back numbers and extra copies.....		130.45
Publication Fund : For vol. VII, no. 3, plate 17....	\$200	
From special subscriptions.....	45	
Annual subscriptions.	210	455.00
Authors' reprints (at cost).....		196.73
		<hr/>
		\$3,766.83

EXPENDITURES

The New Era Printing Company, for printing, binding, and mailing <i>American Anthropologist</i> (vol. VI, no. 5, and vol. VII, nos. 1, 2, 3)	\$1,845.24	
Printing Memoirs American Anthropological and Ethnological Societies.....	143.83 ¹	
Illustrations for <i>American Anthropologist</i>	289.66	
Colored plate for vol. VII, no. 3.....	150.00	
Editor's expenses.....	225.00	
Insurance on back numbers	25.00	
Secretary's expenses.....	80.59	
Treasurer's expenses.....	136.14	
American Ethnological Society to cancel debt.....	62.40	
To correct bank error on foreign exchange.....	32.09	
Expenses of San Francisco meeting.....	77.00	3,066.95
Balance to meet outstanding liabilities.....		\$699.88

Following the reading of Mr Hodge's paper on "The needs of the *American Anthropologist* in the direction of Bibliography and Reviews of American Anthropological Literature," it was moved that a committee be appointed to consider the question of Book Reviews. Carried. (Messrs Hodge (chairman), Chamberlain, Dixon, Gordon, and Wissler were subsequently appointed by the President to constitute this committee.)

Committee on Resolutions. — Dr MacCurdy submitted the following resolutions, which were adopted:

Resolved, that the American Anthropological Association express its appreciation of the courtesy of Cornell University in extending to the Association the hospitality of its buildings, the very cordial invitation to luncheon December 27th, 28th, and 29th, and the welcome personally given through its President, Dr Jacob Gould Schurman; that the Association express its appreciation of the ability and fidelity of Prof. H. C. Elmer in his capacity as Chairman of the Local Committee; that the thanks of the Association be extended to the Town and Gown Club of Ithaca for its hospitality so generously offered.

PAPERS READ

Mr Warren K. Moorehead: *Natural History vs. the Historical Method in the Study of Certain Stone Objects.* (Read by Dr Peabody.)

Dr Charles Peabody and Mr W. K. Moorehead: *The So-called Gorges.* (Illustrated by stereopticon.)

¹ This sum was paid in behalf of the American Ethnological Society and the Association's indebtedness credited therewith.

Prof. Franz Boas: *The Theory of Evolution Applied to Ethnological Problems.*

Mr Edward Sapir: *Preliminary Report on an Expedition to the Upper Chinook.*

Dr Berthold Laufer: *History of the Game of Polo.*

Mr F. W. Hodge: *The Needs of the "American Anthropologist" in the Direction of Bibliography and Reviews of American Anthropological Literature.* (Read by Dr MacCurdy.)

Mr C. V. Hartman: *Use and Ornamentation of the Tree-calabash in Tropical America.* (Illustrated by stereopticon and specimens.)

Mr G. W. James: *Poetry and Symbolism of Indian Basketry* (with demonstrations).

Prof. Burt G. Wilder: (1) *The Statements and Opinions of Jeffries Wyman as to the Anthropoid Apes and their Approximation to Man.* (2) *Notes on Certain Human and Ape Brains in the Cornell Collection.*

(Papers read before the Joint Session of the Association with the American Folk-Lore Society, Prof. Thomas Frederick Crane, Dean of the University Faculty, Cornell University, presiding:)

Presidential Address of Miss Alice C. Fletcher: *Psychic Relation between Men and Animals* (by title).

Dr John R. Swanton: *A Concordance of American Myths.* (Read by Mr Newell.)¹

Mr W. W. Newell: *Early Printed German-American Popular Medicine.*

(Papers read at the Joint Session of the Association with the Archaeological Institute of America and the American Philological Association:)

Prof. Franz Boas: *Philological Aspects of Problems of American Anthropology and Archeology.*

Mr Edgar L. Hewett: *The Preservation of American Antiquities; Progress during the Last Year; Proposed Legislation.*²

PAPERS READ BY TITLE

Dr Clark Wissler: *Some Psychological Elements in Primitive Art.*

Prof. Marshall H. Saville: *The Goldsmith's Art in Ancient Mexico.*

Mr Phillips Barry: *Folk-Poetry of New England.*

Mr John B. Stoudt: *German-American Riddles.*

Mr V. Stefánsson: *The Scandinavian Occupancy of Greenland.*

¹ A Committee on the Concordance of Mythology was subsequently appointed, as follows: Boas (chairman), Dixon, and Swanton.

² See page 109 of this issue.

Mrs Marie L. Lamoreaux: *Suggestions on the Origin of Prehistoric Ruins of the South American Continent, and Origin of the People and Civilization.*

Dr A. L. Kroeber: *Two Ceremonies of the Mohave Indians.*

GEORGE GRANT MACCURDY,

Secretary.

YALE UNIVERSITY MUSEUM,
NEW HAVEN, CONNECTICUT.

American Anthropological Association

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RECENT CAVE EXPLORATION IN CALIFORNIA¹

By JOHN C. MERRIAM

INTRODUCTION

During the last three years a series of investigations has been carried on by the Department of Anthropology of the University of California, with a view to determining, if possible, the time when man first appeared in this region. As cavern deposits have furnished some of the most important materials in the study of early man in other regions, it was considered desirable, as one of the phases of this work, to make a careful paleontological and archeological investigation of the numerous limestone caves of the state. In this study the effort has been made to obtain as complete a knowledge as possible of the mammalian faunas which have existed in this region between early Quaternary time and the present. Man is considered as a possible element of the fauna, and so far as his geographic or his geologic occurrence is concerned he must be subjected to investigations of much the same character as are used in the study of other organisms. Until the facts of this class are determined, it is difficult to make a beginning on matters which are perhaps more definitely anthropological.

The discovery of human relics, apparently in association with remains belonging to a Quaternary fauna, in the extreme southern portion of South America leads one to suspect that an early migration of the human type may have passed over North America into

¹ Read at the meeting of the American Anthropological Association, San Francisco, August 30, 1905. Including a partial report to the American Committee of the Archaeological Institute of America on the explorations made under an appropriation by the committee for the work in 1905.

South America. That other mammalian types came into America in fairly recent geological time we know, and there is no inherent improbability in the theory that man came with the other mammals. If his remains are found with a Quaternary fauna in the southern continent there is good reason why we should search for them here.

Up to the present time only a few caves situated in Calaveras county and in Shasta county have been examined. Many other occurrences are known, but limitations of time have made it impossible to visit these localities. One would hardly be justified in stating that as yet more than a beginning has been made on the possible cave investigations of California. It is to be hoped that in time these studies, in connection with the other phases of this work, may give us some definite information regarding the date of man's appearance in the Pacific Coast region.

MERCER'S CAVE

In the summer of 1901 Professor F. W. Putnam and the writer examined several caves in the vicinity of Murphys, Calaveras county, and in 1902 Dr W. J. Sinclair visited a number of caverns in the same region. The most interesting remains encountered were those in the well-known Mercer's cave near Murphys. In this cavern there were found a number of bones of an extinct ground-sloth, which has recently been described by Dr Sinclair as the type of a new species, *Megalonyx sierrensis*.¹ The bones of this animal were covered with a deposit of stalagmite, ranging from a few millimeters to about half an inch in thickness. From their situation it appeared that the body of the animal had fallen into the main chute of the cave, and in the process of decay the remains had been scattered for a considerable distance along the passageway. In the same cavern, although not in close proximity to the *Megalonyx* remains, there were found a number of human bones bearing a very thin calcareous incrustation. It appears that in this region it has been at some time the custom of the aborigines to throw the bodies of their dead into such caverns as this, and in places great numbers of skeletons

¹ Wm. J. Sinclair, *New Mammalia from the Quaternary Caves of California*, *Publ. Univ. Calif., Geology*, vol. 4, no. 7, p. 155.

have accumulated. The human bones found in this cave were in such position as to indicate that they had been thrown into the first chamber through the small opening above, while the *Megalonyx* remains had fallen some distance below this chamber. While it is exceedingly difficult to form any estimate of the relative ages of the human bones and the *Megalonyx* remains, such evidence as we have seems to indicate that the remains of man are the younger, as they are nearer the opening and are covered with a much thinner layer of stalagmitic material. The human bones are, however, probably many years old. While the relative thickness of the covering of stalagmite is in itself no absolute criterion as to the age of the enclosed material, as it may accumulate very rapidly in one place and very slowly in another place, it is probable that the thinner layer on the human bones means a shorter period of entombment.

POTTER CREEK CAVE

The most extensive investigations of the caverns have been carried on in Shasta county. In this region two large caves have been very carefully explored and the principal deposits almost completely worked over. These are Potter Creek cave, on the McCloud river, near Baird, and the Samwel cave, on the same river, fifteen miles above Baird.

Potter Creek cave was the first to be the subject of careful investigation. It was discovered in 1878 by Mr J. A. Richardson, and by him several specimens of fossil bones were sent to Professor E. D. Cope. In the summer of 1902 Mr E. L. Furlong explored the cave again, without knowing that it was the one discovered by Mr Richardson. Large deposits of fossil remains were found, and excavation work was carried on by him and by Dr Sinclair through that season. Throughout the whole of the summer of 1903 the work was in charge of Dr Sinclair, whose excellent report¹ on this work has already been published. The floor of the cave was carefully surveyed and all specimens taken out were labeled with reference to their position in the strata. The deposits were excavated to a depth of 25 feet, below which there seemed to be little but an

¹ *Publ. Univ. Calif., North Amer. Archaeol. and Ethnol.*, vol. 2, no. 1.

accumulation of stalagmite-covered boulders. The exploration work furnished several thousand bones and fragments, of which between 4,000 and 5,000 were determinable specimens. The remains include those of many extinct animals, and furnish the most satisfactory representation of the Quaternary fauna of California that has yet been obtained in any one locality. Fifty-two species were listed by Dr Sinclair, of which at least twenty-one were found to be extinct.

Associated with the remains of the Quaternary fauna in Potter Creek cave there were many broken, splintered, and polished bones, which were carefully investigated by Dr Sinclair, having been considered as possibly representing the work of man. The presence of the splintered bones is yet to be thoroughly satisfactorily explained, though there are many ways in which they might have been formed or introduced. In the caves of Europe such splintered bones are in part due to the splintering of long-bones of large mammals by man, and in part to the crushing of such bones by the larger carnivores.

The character of the pointed and polished bones figured by Dr Sinclair in his paper is also difficult to determine with certainty. These polished fragments strongly resemble many of the roughest implements found in the deposits of the shell-mounds of the Pacific coast. Possibly they have been rough bone splinters, used by man until they attained the degree of polish which we find upon them. On the other hand it is noted that in nearly all shell-mound fragments the polish is mainly upon the pointed portion of the implement, while the portions not used for active work may be almost without smoothing or polish. In the specimens from the caves the polish is almost perfectly even over the whole surface in every case. The evenness of this polish seems to indicate that, if these objects were used as implements, special pains must have been taken to polish those portions which would in the course of ordinary use be left rough. Such smoothing as we see here may perhaps be as readily explained by the action of water as by any other means, the fragments being rubbed on all sides and evenly polished.

In other bone fragments, peculiar perforations and notches have been noted which are not easily explained by the operation of

natural processes, but which could be accounted for by perforation through human agency. Of all the evidence which has been advanced in favor of the influence of man in the production of implement-like objects found in the Shasta caves, the evidence of perforation seems probably the strongest. A serious doubt must exist, however, as to whether the presence of only a few somewhat indefinite perforations in a very small number out of several thousand of these fragments should be considered proof of the presence of man. Had a large percentage of the fragments been formed and used by man, evidence of a more definite character ought to be present in abundance.

While it is probably true that as yet no unequivocal evidence of the agency of man in the fashioning of the bone fragments from this cave has been presented, in all fairness to those who may undertake from the study of such materials to give us something of the earliest history of the human race, we should not forget that, at the very period where the discrimination between artifacts and natural objects is most important it becomes most difficult. In the early stages of the development of man, such implements as were used by him were probably in many cases simply special forms of natural objects which were, in their original form, well adapted to meet his primitive needs. The earliest true artifacts were objects of this class showing only a little modification.

A more detailed discussion of the peculiarly marked bone fragments from the California caves is presented by Professor F. W. Putnam in a paper on this subject appearing also in this number of the *American Anthropologist*.

SAMWEL CAVE

The exploration of the Samwel cave, in the Shasta region, has been carried on by Mr E. L. Furlong through parts of the seasons 1903, 1904, and 1905.¹ This cave is somewhat larger than the one at Potter creek and contains several chambers of considerable size. The largest chamber had not been entered previous to 1903, when it was explored by Mr Furlong and the writer.

¹ The explorations during the season of 1905 were carried on under an appropriation from the Archaeological Institute of America for the "Exploration of Caves in Northern California under the supervision of F. W. Putnam."

Opening into one of the passageways about 100 feet from the entrance is a fissure containing a small alluvial fan, which opens out on the floor of the chamber. This deposit appears to have accumulated through the entrance of material from the upper part of the fissure. The entrance is now closed with a stalagmite growth, and no clue to its position has yet been obtained from the study of the surface of the rock outside. In small pockets on the sides of the fissure, and in the deposit below, there have been found large numbers of bone fragments representing a Quaternary fauna. These include remains of extinct species¹ of *Equus*, *Elephas*, and *Ursus*; also remains of *Euceratherium*,² a recently described sheep-like ungulate found in these caves, and bones of a ground-sloth somewhat similar to forms found in the caves of Brazil.³

The largest chamber of the Samwel cave is at a lower level than the entrance and the fissure deposit. It was entered from above through a long chimney. In this chamber there was found a large deposit of fossil remains, including numerous extinct species. Among these were *Euceratherium*, *Preptoceras*⁴ (another new sheep-like form), and a ground-sloth. It seemed improbable that the remains in this lower chamber had come in through the passage by which we first obtained entrance, and a careful search revealed the presence of an alluvial fan coming in from one side of the cavern. Excavations into this indicated that it reached out toward the surface, and during the last season a passageway was cut through it to an outer grotto on the side of a small cañon near by. The lower chamber was originally reached by a passageway leading from a large shelter cave now represented by the grotto. A part of the roof of the original shelter has broken down, and is represented by several large blocks which have fallen from the cliff above.

In the Samwel cave numerous splintered and polished bone fragments have been obtained, and the problems with relation to man are practically the same as those of Potter Creek cave. In addition to these objects, there was found in the chamber near the fissure de-

¹ See E. L. Furlong in *Science*, n. s., vol. 20, p. 53.

² Sinclair and Furlong, *Univ. Calif. Publ., Geology*, vol. 3, no. 20.

³ Sinclair, *New Mammalia*, op. cit., p. 153.

⁴ E. L. Furlong, *Univ. Calif. Publ., Geology*, vol. 4, no. 8.

posit, a chipped fragment of basaltic lava, which appeared to have come from a point six inches below the surface of the stalagmite. Also in the excavation of the outer grotto of the largest chamber, a chipped obsidian fragment was brought up in the bucket from a depth of eleven feet, at which level bones resembling those of an extinct species have been obtained. In neither case, however, was the chipped fragment actually seen in place, and both must be set aside, for the present, as merely suggesting the presence of man.

STONE MAN CAVE

A third cavern in the Shasta region, which has been partly explored, is the Stone Man cave about one mile northeast of Baird. It was visited by Mr Furlong and the writer in 1903. In one of the uppermost chambers a number of bone fragments were found in the stalagmite. These were, however, too imperfect for specific determination, and the age of the deposit has not been determined. In one of the lower galleries, a portion of a human skeleton was found imbedded in the stalagmite. The greater number of the bones had been removed before our visit, but enough was left to show that a considerable fraction of an inch of stalagmite has accumulated on the skeleton. Mr J. A. Richardson kindly gave us a vertebra which he obtained here when the cave was first explored. It seems to have lost practically all of the organic matter, and the cavities in the bone are largely filled with calcite crystals. In this cave there is unfortunately nothing to fix the age of the skeleton definitely. It might easily be many centuries old, or might have come to its present location at a comparatively recent date, though evidence rather favors a considerable antiquity.

AGE OF THE CAVE DEPOSITS

The faunas of both the Potter Creek and the Samwel cave indicate Quaternary age. As far as is now known, the fauna of Samwel cave contains the larger percentage of recent species and is probably the younger. In addition to this evidence, the situation of the two caverns gives considerable information regarding their relative ages. Potter Creek cave is situated at a height of 800 feet above the level of McCloud river, and just below an ancient terrace level

of the river. The Samwel cave is situated just below a terrace 350 feet above the McCloud. The lowest chamber of this cave opens at a point not more than 200 feet above the river. Both caverns were evidently formed at a time when McCloud river was near the level of the terraces above them. Both received their principal deposits when the river was a short distance below them, and it is evident that the time which has elapsed since the formation of the deposits in Potter Creek cave is much greater than that since the formation of similar beds in the Samwel cave. The evidence of physiography apparently corroborates that obtained from the study of the fauna.

The fauna of Potter Creek cave is considered by Dr Sinclair to represent the middle or later Quaternary. The fauna of Samwel cave is certainly Quaternary, but is evidently later than that of Potter Creek. The age of Potter Creek cave is, according to commonly accepted correlations, not far from that of the earliest deposits containing human remains in Europe. Though a reasonable doubt might arise as to whether man could have reached America as early as the date of the Potter Creek deposits, the age of Samwel cave appears to be within the period of man's existence in the old world.

From the evidence at hand it seems that both Mercer's cave and Stone Man cave were in existence in Quaternary time, and in all probability some of the deposits in both caverns were formed in that period.

UNIVERSITY OF CALIFORNIA,
BERKELEY.

EVIDENCE OF THE WORK OF MAN ON OBJECTS FROM QUATERNARY CAVES IN CALIFORNIA¹

By F. W. PUTNAM

In the investigations of the Quaternary caves of California which have been carried on by the Department of Anthropology of the University of California during the last few years, there have been discovered a considerable number of bone and several stone fragments apparently indicating the work of man. If these specimens are actually the evidence of man's work, it is of the utmost importance to have the facts brought out, as the objects in question have been found associated with a fauna which represents an epoch considerably antedating the end of the Quaternary period, and would indicate human occupancy of this portion of the continent at a very remote period.²

The specimens that seem to exhibit evidence of human handiwork of the Quaternary period include a number of polished and pointed bone fragments in most respects similar to the rougher instruments from the shell-mounds, and several other fragments with perforations of such a character that it seems impossible to explain their presence excepting by the agency of man. With these more definite evidences of man's presence there are found in the same strata large numbers of splintered bones, such as elsewhere form a considerable part of the deposits in caves or in shell-mounds that have served as places of human habitation in prehistoric time.

Another class of objects from the caves, which must be considered in connection with the bone specimens, consists of stone fragments exhibiting the undoubted work of man and showing some evidence of having been buried in strata containing the remains of extinct animals.

¹ Read at the meeting of the American Anthropological Association, San Francisco, August 29, 1905.

² For a description of these caves and a discussion of their geological age, see the preceding paper by Dr J. C. Merriam.

Of the first class of objects three are figured by Dr Sinclair in his paper on the exploration of Potter Creek cave.¹ Two figures of one of these bones are reproduced here (pl. xvii, figs. 1, 2). This specimen (no. 3894) exhibits quite remarkable oblique beveled edges. The inner side of the specimen shows this very clearly, while the sharp edge produced is shown in the outer view. It is difficult to understand how, by any natural process, beveling and smoothing of this character could have been produced, working from two edges to a terminal point. Moreover, the beveling extends from the softer inner portion of the bone to the denser outer layers, producing the sharp edge where it is most useful. At the end opposite to the beveled portion of this specimen is a distinct notch, quite different from the ordinary reëntrant angles in flaked or broken bone. Its appearance on the same fragment with the extraordinary bevel-edge point, giving evidence of the action of two quite different influences on the bone, makes both the beveled end and the notch appear all the more remarkable.²

Of the fragments showing perforations there are two that have been made the subject of special study. The first of these, no. 3959 (pl. xv, figs. 1-4; pl. xvi, figs. 3, 4), is a thick fragment of bone showing several notches or perforations that do not appear to have been formed in any natural way. It was found by Mr Sinclair between 70 and 80 inches below the surface in section 7 of the deposits in Potter Creek cave. Possible explanations of the occurrence of the foramina in this specimen are that they are natural; that they have been formed by the gnawing of rodents or the boring of insects; or that they have been produced by heavy, angular bodies falling upon them, the rough edges afterward being smoothed by water action. In order to test these suggestions as carefully as possible, every effort has been made to determine the particular bone

¹ *University of California Publications, American Archaeology and Ethnology*, vol. 2, no. 1.

² The plate in Mr Sinclair's paper contains for comparison the figures of two unquestionable bone implements from the ancient shell-heap at Emeryville, and any one familiar with the pointed and cutting implements made of splinters of bone, which are so abundant in shell-heaps and other accumulations of human debris, will readily accept these pointed and perforated bone splinters from the caves as implements of the same character.



BONE FRAGMENT FROM POTTER CREEK CAVE

(Department of Anthropology, University of California, No. 3952. Natural size)

1, Outer surface, showing semicircular notch near the pointed end. 2, Outer surface, left side, showing circular perforation and probable cutting at ends. 3, 4, Inner surface. (In figure 4 the bristle passes through the small hole at the edge of the bone.)

or part of bone which this fragment represents. After having passed through the hands of Mr Sinclair, who did not reach a definite conclusion as to its character, the specimen was examined by a number of eminent comparative anatomists, including Dr G. H. Parker, Dr W. D. Mathews, Mr J. W. Gidley, Mr F. A. Lucas, Dr A. Hrdlička, and Dr F. W. True, all of whom agree that the perforations are not natural. Messrs Mathews and Gidley have kindly expressed their opinion in the following statement :

“ Specimen (no. 3959) from Pleistocene cave deposit of Potter creek, California, submitted for examination by Professor Putnam.

“ The specimen is a fragment of a shaft of a limb-bone of some mammal. It is too much worn and uncharacteristic for positive identification, but appears to be part of the humerus of a ruminant, probably from the external side near the distal end of the shaft, and compares most nearly with *Ovibos*. It is pierced by a complete circular hole and deeply notched by a much larger oval hole of which the outer side is broken away. These are not like the natural foramina of bones in the appearance of their edges, nor is there any possible identification of the fragment in question which would give them the position and size of naturally occurring foramina.

“ They are not the work of water acting by solution, as shown by the uniform diameter and regularly circular form of the smaller one, and the beveled, not rounded, edges of the larger one.

“ They are not the work of insects or of boring molluscs, as is proved by the slight beveling of the external and rounding of the internal margin of the smaller hole, and by the strong and irregular beveling of the larger one, as well as by other features of position, direction, etc.

“ They are not the work of rodents : this explanation is out of the question for the smaller hole, and must be rejected for the larger one from the absence of any marks of gnawing teeth around the margin of the hole, its form, the thickness of the bone at the part pierced, and other considerations. Parts of the edges of the fragment bear the marks of gnawing teeth very clearly defined ; this gnawing must have occurred after the fragment was broken to its present form, while the larger hole was made when it was more complete than it now is.

“ These holes could not have been punctured by the teeth of carnivora, the beveling of the edges of the larger hole, and the small size and uniform diameter of the smaller one forbidding it.

“ The only alternative of which we can conceive, and in our view the

only possible explanation of these holes is that they are the work of man. The end of the fragment has also two or more slight notches, the margin of which is like that of the incomplete hole mentioned. These also are probably of artificial origin and can hardly be explained by natural splintering of the bone, or as the work of carnivora or rodents.

"We therefore endorse without question Professor Putnam's view that this bone certainly shows the handiwork of man, and we take pleasure in expressing our acknowledgments for the privilege of examining it.

[Signed] "W. D. MATTHEW, J. W. GIDLEY.

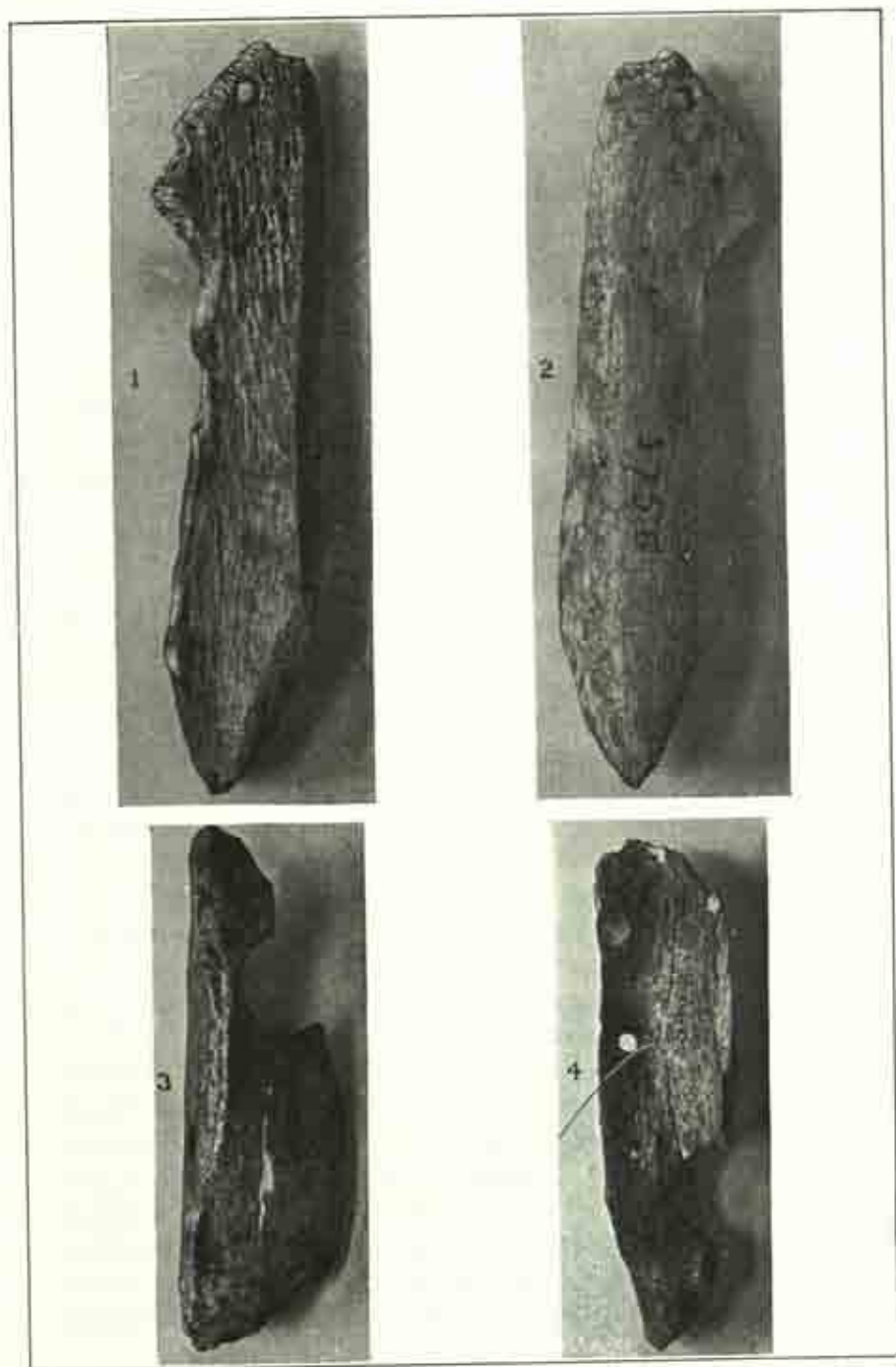
"AMERICAN MUSEUM OF NATURAL HISTORY,

February second, 1905."

As the musk-ox is unknown in the Shasta cave fauna it is not probable that this specimen represents a bone of one of these animals. There were, however, in these caves abundant remains of the new genus *Euceratherium*, a large sheep-like animal related to the musk-ox and possessing bones quite similar in form and size. *Euceratherium* was one of the more common ungulates at the period when the cave deposit was forming and would have served as one of the principal food supplies for early man if he were living in this region at the time. The form of this fragment agrees as closely with that of the distal end of the humerus of *Euceratherium* as it does with that of *Ovibos*, and there is good reason for believing that it represents that bone. In the humerus of *Euceratherium* the foramina are similar to those in *Ovibos*, and there are no natural openings that correspond to the perforations seen here.

The smaller completely enclosed perforation in the specimen (pl. xv, figs. 2, 3, 4; pl. xvi, fig. 4) is almost circular in outline, is nearly normal to the surface of the bone, and is slightly beveled on the margins. The cutting of the hole and the beveling are not accompanied by much cutting of the natural canals of the bone, but the form and direction of the holes are not comparable with those of ordinary natural foramina.

Close to the smaller perforation is an exceedingly small opening, about half a millimeter in diameter, indicated in the illustrations (pl. xv, fig. 4; pl. xvi, fig. 4) by a bristle. It may represent a natural foramen or it may be artificial; it is difficult to determine its true nature.



BONE FRAGMENTS FROM POTTER CREEK CAVE

(Department of Anthropology, University of California. Natural size)

1, Inner side of splintered fragment (in the upper end there is a nearly circular perforation); No. 3756.
2, Outer side of the same fragment. 3, Another view of specimen 3953, shown in Plate XV. 4, Inner view of the same.

The second specimen, no. 3756 (pl. xvi, figs. 1, 2), represents a large fragment splintered from a heavy limb bone. It was obtained 40-50 inches below the surface in section 6 of the Potter Creek cave. One end is pointed and somewhat beveled by splintering, the other is slightly worn and has been much gnawed by rodents. In the rough end of the fragment is a nearly circular hole, about 3 mm. in diameter, cutting the bone along a line nearly normal to its outer surface. The hole is quite sharply cut, and the edges, both at the outer and the inner ends of the aperture are very little worn. Viewed from the inner side by means of a hand lens one can see that the coarser canals of the bone are distinctly cut across by this perforation. Although I am not able to determine with certainty the bone from which this fragment came, it is probably a splinter of a leg bone of one of the large ungulates. The opening appears quite different from a natural foramen, as the edges are sharp and the canals of the bone are crossed in an unnatural manner. The course of the opening, moreover, is transverse to the axis of the bone, whereas most foramina in bones of this character enter at an angle of less than 90 degrees.

It should be noted in connection with the study of this specimen that the end in which the perforation occurs is somewhat worn and that the opposite end is splintered in such a way as to form a natural bevel on both sides, coming to a point somewhat as in specimen no. 3894 described above. While I do not wish to assert positively that this opening was made by the hand of man, I cannot conceive of any natural way in which such a perforation could be produced, and certainly the present evidence points to man as the active agent in its production.

The polished and perforated specimens mentioned above are found in association with a large number of splintered bone fragments derived largely from the breaking up of long-bones of large ungulates. Of these there are many hundreds of specimens occurring in nearly all layers of the deposits. On only a few of the splinters are there marks such as would be made by the teeth of carnivora in crushing the bones. In the absence of definite evidence of the fracture of these bones by large carnivora, one is forced to suspect that man has been the active agent here as in the shell-

mounds, where the numerous fractured and splintered bones are unanimously attributed to the work of man.

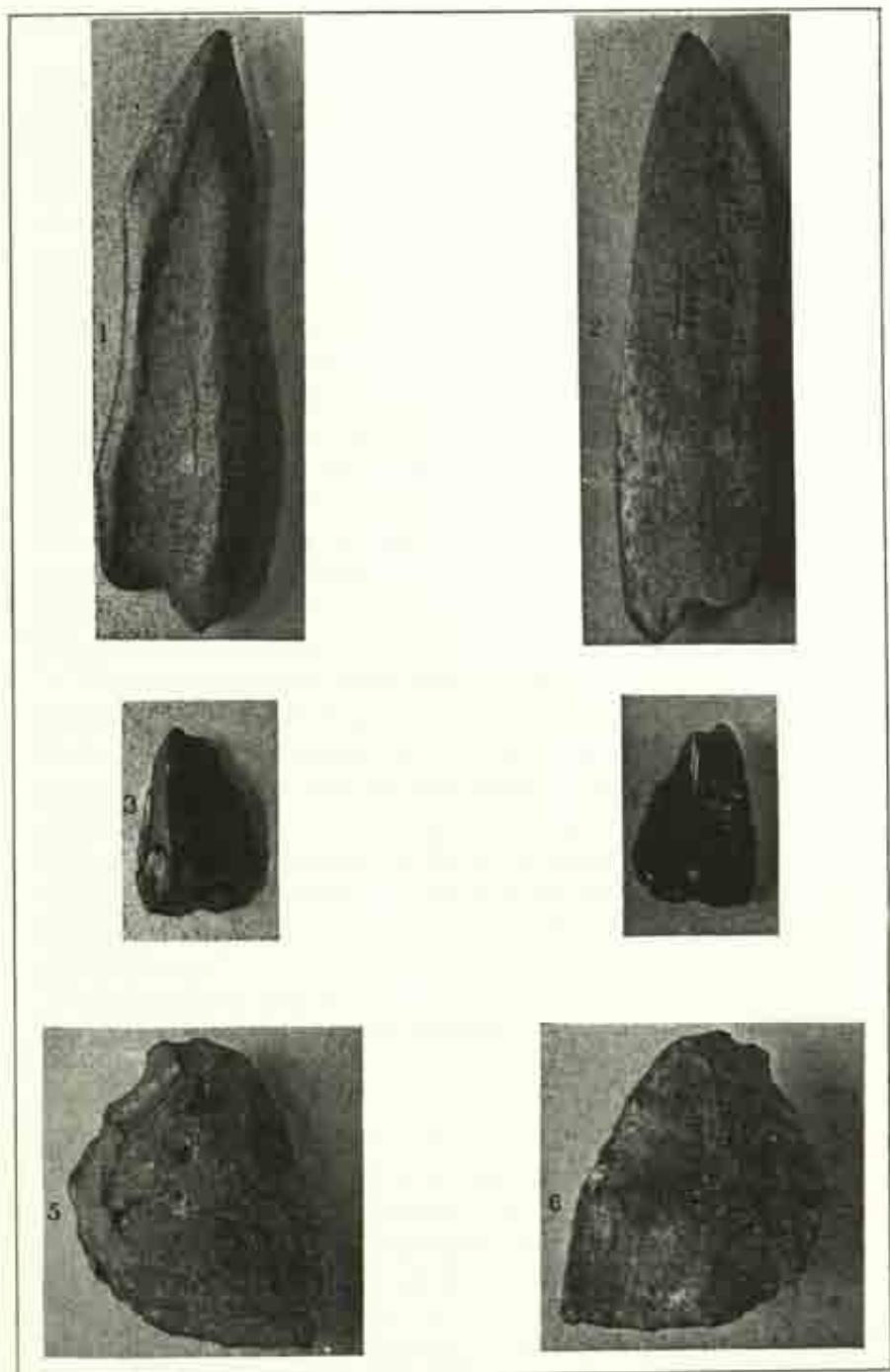
Of the stone fragments mentioned above as occurring in these cave deposits, two were found in Samwel cave. In these two specimens there is no doubt of the handiwork of man. The first specimen, no. 10012 (pl. xvii, figs. 5, 6), was obtained by Mr E. L. Furlong, in 1904, in the fissure deposit of the upper chamber of Samwel cave. It was found six inches beneath the loosened stalagmite layer after a blast to break up the dense rock. The specimen is a distinctly chipped basalt fragment. It seemed to belong to the loosened earth in which it was found. Its surface is partially covered with a thin calcareous coating. In and on the stalagmite above it numerous remains of extinct animals were obtained.

The second specimen,¹ no. 10011 (pl. xvii, figs. 3, 4), is a distinctly chipped obsidian flake obtained from a shaft sunk into the deposits filling the old entrance of the large lower chamber of Samwel cave. This specimen was not seen in place, but was brought up in a bucket filled with moist earth from the bottom of the shaft, then eleven feet deep. The earth around the mouth of the shaft was quite dry, and if the fragment did not come from the layers below, it must have fallen into the shaft in the course of the workings and have been buried in the moist earth below. The surface of the specimen was partly covered with a thin calcareous incrustation. The layer exposed at the bottom of the pit at this time underlies strata containing remains of an extinct ground-sloth.

While we cannot state definitely that either of the stone fragments actually occurred in the Quaternary deposits, there is at least strong presumptive evidence in favor of their having been derived from these beds, and that they were the work of men existing in this region before the Quaternary fauna became extinct.

In concluding this brief statement relating to the supposed evidence of man's handiwork in the Shasta caves, it seems to me that the two perforated bones here illustrated are sufficiently important to warrant the belief that man inhabited the vicinity of the caves at least as early as the latter half of the Quaternary period. At all

¹This specimen was obtained in the summer of 1905, during the progress of the work carried on under an appropriation by the Archaeological Institute of America.



BONE AND STONE FRAGMENTS FROM POTTER CREEK AND SAMWEL CAVES

(Department of Anthropology, University of California. Natural size)

1, Inner side of polished bone fragment from Potter Creek cave (No. 3894). The upper end is beveled at both edges. A shallow notch is seen at the lower end. 2, Outer side of the same. 3, 4, Opposite sides of a chipped obsidian flake from Samwel cave (No. 10011). 5, 6, Opposite sides of a chipped basalt fragment from Samwel cave (No. 10012).

events, until it is proved that the perforations and the beveling of the points on some of these bone splinters were made without man's agency, archeologists will, I think, accept the specimens here described as primitive forms of bone implements.

The fact that only a few pointed bones with perforations were found is in conformity with our experience in the explorations of shell-heaps and village sites, where hundreds of simple pointed implements made from splinters of bone have been found, but seldom one with a perforation.

The very large number of splinters of long-bones of various mammals, found in the caves, is of importance in this investigation, since they are of the same character as splinters of marrow-bones that are found on so many ancient sites of man's occupancy. The very small number of splinters showing marks of the teeth of carnivora, and the difficulty of accounting for such large numbers of bone splinters otherwise than by man's agency, should also be given due consideration.

The exploration of other caves in this vicinity will probably bring to light much of importance in relation to early man in California. It is with pleasure that I acknowledge my great indebtedness to Dr J. C. Merriam for his hearty coöperation in these explorations, in which his knowledge of geology and paleontology has been of the first importance, as shown by his exceedingly conservative paper on this subject, in which he gives a general review of the researches that have thus far been carried on by the University of California.

DEPARTMENT OF ANTHROPOLOGY,
UNIVERSITY OF CALIFORNIA, BERKELEY.

NOTE ON THE DETERMINATION OF SEX IN MAN

By E. T. BREWSTER

Dr John Benjamin Nichols, in a paper recently printed in this journal,¹ sets forth conclusions practically identical with those to which I had come, quite independently, by the same method. He finds, in effect, that in three thousand New England families having six children or more, the actual distribution of sons and daughters is very nearly identical with the theoretical chance distribution. There is nevertheless a slight tendency toward an excess of families in which the children are all of the same sex, and also a somewhat disproportionate number of boys in the largest families. Dr Nichols therefore concludes that sex is entirely independent of environment, but is determined by the dominance of one or the other of the hereditary impulses derived from the two parents. The sex-making forces fight it out in the germ, and in the long run one is about as likely to be prepotent as the other. The slight departures from theory he would explain by the occasional ascendancy of one parent over the other.

Dismissing for the present all questions of interpretation, I shall set forth certain facts in regard to these departures from the theoretical chance distribution.

First of all I turn to the magnitude of the disagreement with chance. Of 1,200 children of known sex, 601 were followed at the next birth by a child of the same sex as themselves, 599 by one of the other sex. This is clearly chance and far within the error of random sampling. Suppose, however, in place of random we take selected cases, a method which in studies of this sort has not been generally employed. In 1,442 cases in which two consecutive children were of the same sex, I find that in 727 a run of two boys or two girls is followed by another of the same sex, and by one of a different sex in 715. Table A shows the results of applying the same method to runs of three, four, five, six, seven, and eight chil-

¹ Vol. VII, No. 1, 1905, pp. 24-36.

dren of like sex in two groups of related families. Throwing out the last case, in which the numbers are too small to have much value, in all cases except one, if two or more consecutive children are of like sex the next stands an appreciably better than average chance of being of that sex also. On the whole this tendency tends to increase with the length of the run. At any rate the final sum, 1,210 of one sort to 1,154 of the other, is significant of the operation of some real cause. Sex, then, is nearly a matter of chance, yet there are special cases in which some sex-determining tendency is also at work, so that a sporting neighbor of the Patriarch Jacob, after the birth of the eleventh consecutive son, might reasonably risk a wager of three to two that number twelve would be a boy also.

TABLE A

SEX OF CHILD AFTER A SUCCESSION OF CHILDREN OF THE SAME SEX

No. Children Alike.		2		3		4		5		6		7		8		Sum.	
Family.		Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.
T*****	like.	314		119		44		13		7		3		1		501	
	dif.		311		117		43		10		4		2		1		488
F*****	like.	413		169		70		35		16		6		0		709	
	dif.		404		173		54		17		11		4		3		666
Sum.	like.	727		288		114		48		23		9		1		1210	
	dif.		715		290		97		27		14		6		4		1154
																	2364
Observed ratio																	
like/dif.		1.02		.99		1.18		1.78		1.64		1.5		.25		1.05	
Calculated ratio																	
sexes equal		1.00		1.00												1.00	
Calculated ratio																	
11 ♂ equal 10 ♀.		1.01+		1.02—		1.02		1.02+		1.0295		1.034		1.038			

I shall now set forth evidence to show that a tendency to depart from the chance distribution of sex in the direction of an excess of boys or girls is correlated with the age of the mother.

My data consist of the published genealogies of eight New England families whose records go back to the early days of the country and come down to the middle of the last century when the number of children to each marriage becomes too small for my purpose. Table B shows the distribution of sex among the first three births and the last three in some fourteen hundred families in which

there were six children or more. From this table it appears that there is a pretty well-marked tendency for mothers to bear boys early in life and girls later. Twenty-three hundred women had among their first three children 3,756 boys and 3,285 girls. The same women had among their last three births 3,594 boys and 3,432 girls. In other words, a group of young women bear 114 boys to each 100 girls; the very same women when along in years bear only 105 boys to each 100 girls. Moreover, taking each of the eight family stocks separately, there is no case in which the number of boys among the last three births exceeds that among the first three. On the other hand, there is but one of the eight in which the number of girls in the first three exceeds that in the last three. Clearly, therefore, there is a correlation between the age of mothers and the sex of the offspring.

TABLE B

SEX OF FIRST THREE AND LAST THREE CHILDREN IN FAMILIES OF SIX OR MORE

Families.	1 Boy.	2 Boys. 1 Girl.	1 Boy. 2 Girls.	3 Girls.	Total Boys.	Total Girls.	Ratio Boys/Girls.	Mean Ratio.
1. F***** { first 3.	41	128	101	33	480	429	1.12	1.025
{ last 3.	32	118	104	48	436	470	.93	
2. T***** { first 3.	45	85	85	26	390	333	1.17	1.09
{ last 3.	28	97	88	30	366	363	1.01	
3. R*****	53	94	89	31	436	365	1.20	1.09
4. W*****	37	58	58	17	285	225	1.27	1.16
5. F****	19	72	48	22	249	234	1.06	1.045
6. D****	30	63	56	20	242	235	1.03	1.06
7. P*****	42	114	93	30	411	390	1.06	
8. K*****	24	90	105	29	411	387	1.06	1.23
9. Sum	26	55	38	16	220	179	1.23	1.23
10. Sum calculated	118	334	263	90	1285	1130	1.14	1.12
if 11 ♂ to 10 ♀ ...	367	940	775	265	3756	3285	1.14	1.095
	346	849	856	289	3594	3432	1.05	

The correlation need not, however, be direct. In fact the more obvious supposition is that the correlation is primarily with bodily vigor and only incidentally with age. I shall now submit evidence on this point.

Presumably women who bear more than five children are a selected class appreciably more vigorous than the general body of

wives. They should therefore bear a somewhat larger proportion of boys. As a matter of fact, averaging the first three and the last three births, they produce boys and girls in the ratio of 110 to 100; while a random sample of mothers, including this selected class, shows a ratio of only 1.07. This agrees perfectly with the long known fact that there is a preponderance of boys among the first births; and that, according to Dr Nichols, large families contain a disproportionate number of boys and the families of consumptive mothers an excess of girls.

At first sight it would seem easy to test the matter still further by studying the proportion of boys and girls in families of fewer than six children. Unfortunately the apparently small family of a genealogy may be merely one whose members have in part escaped the notice of the compiler; and since the latter is somewhat more likely to overlook girls than boys, the desired ratio is likely to come out higher than it should. Moreover, especially as one comes down toward recent times, families of fewer than six children become practically identical with the general unselected population.

It is, however, possible to select one group of women who are clearly less vigorous of body than their sisters — those, namely, whose husbands marry again. In general the woman whose husband has had children by a second or third wife has died young and is therefore likely to be the sort of woman who should, according to our present theory, bear proportionately fewer boys than average mothers. My numbers are unfortunately small. I find, however, in this class 64 boys and 63 girls; and this, so far as it goes, bears out the theory.

TABLE C

SEX OF CHILDREN OF FIRST, SECOND, AND THIRD WIVES

	First Wife.	Second Wife.	Third Wife.	Second and Third.
♂	64	113	6	119
♀	63	86	2	88
Ratio ♂/♀	1.02	1.31		1.35

There is, moreover, another curious fact (Table C) concerning the children of men who marry more than once. The second wife not only has more children than the first (199 to 127); she also bears a far larger proportion of boys. Second wives, in the families

which I am discussing, have 113 boys and only 86 girls — a ratio of 132 to 100. Third wives have 6 and 2. Now, second wives are presumably, as a whole, somewhat older than first wives; why then do they not bear fewer boys instead of more? The reason I take to be this. The thrifty New Englander, even in his first matrimonial venture, was apt to select his wife with something of an eye to her economic value; how much more then did he at his second attempt choose a woman of vigorous constitution. Men marrying a second time are therefore a selected group which may fairly be assumed to rate bodily stamina somewhat higher as an element in conjugal choice than do less experienced persons. Moreover, the second-wife class may fairly be taken to include an unusual proportion of widows. Now widows, since they are women who have survived their husbands, should be a selected body of unusually vigorous persons. But remarried widows are in addition a selection from this selected group. They are women who have come through the trials of their first venture with enough strength, health, and good looks to render them eligible for a second. First wives and second wives therefore are two special classes — the one more, the other less vigorous than the general run of their contemporaries. Hence the one produces a smaller, the other a larger proportion of boys than the average. All this tends to show that the observed correlation is between sex of offspring and vigor rather than between sex of offspring and age; and this is *a priori* the more probable supposition.

Turning now from the facts to their interpretation, we shall find, I think, that the observed correlation between sex of offspring and age, or vigor, of mothers may be, in part, independent of any initial sex-producing tendency, but is, on the contrary, caused by a higher death rate among fetal and infant boys. There are, for example,¹ 135-140 still-born boys to each 100 girls. Moreover it appears from the records of one Dublin hospital that 1 girl and 16 boys died within half an hour of birth; at the end of the first hour the numbers had become 2 and 19; and after six hours, 7 and 29. It is well known that while boys outnumber girls at birth, occasionally by as many as 130 to 100, they tend to die off so much faster

¹ Havelock Ellis, *Man and Woman*, p. 432.

that they usually soon drop behind in absolute numbers. It is not known, apparently, what the comparative death-rate of the two sexes is among young embryos. If then, given an initial excess of boys, we suppose that boys, since they are larger than girls, are more tax upon their mothers so that the older and less vigorous women lose more of them, while the younger and more vigorous mothers lose fewer, the observed distribution of sex in families is, in part, accounted for.

Nevertheless, this explanation alone is apparently not sufficient. The change in the ratio of boys to girls from 114 to 105, as shown in Table B, is more than can reasonably be attributed to this cause alone. Moreover, the ninth and tenth lines of Table B show that in both groups of births the number of unmixed families, both of boys and of girls, is in excess of the number due to chance. This could hardly be the case if the cause involved were one which operates on the boys alone. Nor is this explanation sufficient to account entirely for the runs in Table A. Notwithstanding this, if we knew, as we do not, anything about the reasons why ova and very young embryos fail to give rise to living infants, it might very well appear that the two sexes are in this respect, as in most others, by no means on a level. Causes of the same general order as those which take off more boys in infancy, more women in early adult life, and more men in old age, which destroy more women by phthisis and more men by apoplexy, might conceivably operate from the beginning and, the sexes being originally equal in numbers, cause just the distribution which actually appears.

After all, the significant thing about the distribution of sex is that it is so nearly in accord with chance. Only by supposing a chance distribution somewhat modified by some variable cause acting within small limits can we avoid the difficulties inherent in all theories which involve the idea of "prepotency," and assign to the same cause the general law and the departures from it.

Summary

1. Sex in man is nearly but not quite a matter of chance.
2. In large families and among the first three births in families of six children or more the proportion of boys is more than average.

3. This is probably due to the greater vigor of the mothers.
4. This excess of boys is not entirely due to "prepotency" but at least in part to the fact that these mothers lose fewer boys than average women.
5. The same principle might conceivably be extended to explain all departures from chance distribution.

ANDOVER,
MASSACHUSETTS.

NORTH AMERICAN ETHNOGRAPHICAL MATERIAL IN ITALIAN COLLECTIONS

By DAVID I. BUSHNELL, JR

Considering the scarcity of early American ethnological material, and realizing how comparatively small are the collections of old objects of a perishable nature in American museums, it is with a feeling of pleasure and satisfaction that such things are met with in the older institutions in Europe. Brought here as curiosities by the explorer, the missionary, or the trader, at an early day—in many cases when the greater portion of the continent was yet held and occupied by the native tribes—various articles reached different collections where they were cared for and preserved, others were hidden away only to come to light by chance at this late day, as was the case with the two Mexican atlats now in the Florence Museum.¹ Probably there are yet other specimens, of equal interest and value, that may be revealed at some future time.

The museums in Florence and Rome possess very rare and valuable ethnological specimens from North America. Some of these are of historic interest, especially the specimens from Mexico which appear to have been part of the collection sent to Spain by Cortés. But, as is the case in some of the older institutions, the collections mentioned are very incomplete, and regarding a number of the specimens nothing definite is known; consequently we can say only approximately where many objects were collected.

As I have already described the two atlats in the Anthropological Museum in Florence, above referred to, the first part of this article will be devoted to a consideration of the other rare Mexican objects in the several Italian collections.

The ancient Aztec atlatl in the Kircheriano Museum in Rome is similar to those in Florence, being made of the same kind of wood, which is heavy and dark, resembling rosewood; but it is not

¹ See *American Anthropologist*, 1905, VII, 218.

so well preserved and the gold has been rubbed and worn away from much of the carved surface.¹ The carving is in very low relief, similar to the larger of the Florence specimens. The decoration on the back is not divided into sections by transverse lines or ridges, but is composed of a single continuous group of figures and symbols closely connected.

The dimensions² of this, which may be termed Specimen C (pl. xviii), are :

Length	565 mm.
Width { at upper end	39 "
{ at end of carving	29 "
{ at lower end	20 "
Length of carved surface	360 "
Length of hook	64 "
Length of groove	501 "
Width of groove { at base of hook	7.5 "
{ at lower end	4 "

The front of this specimen is more elaborately carved than either of the specimens in Florence. The hook is more massive and is carved in the form of a human head surmounted by a large head-dress. Down each side of the groove are five human figures, standing, and facing inward.

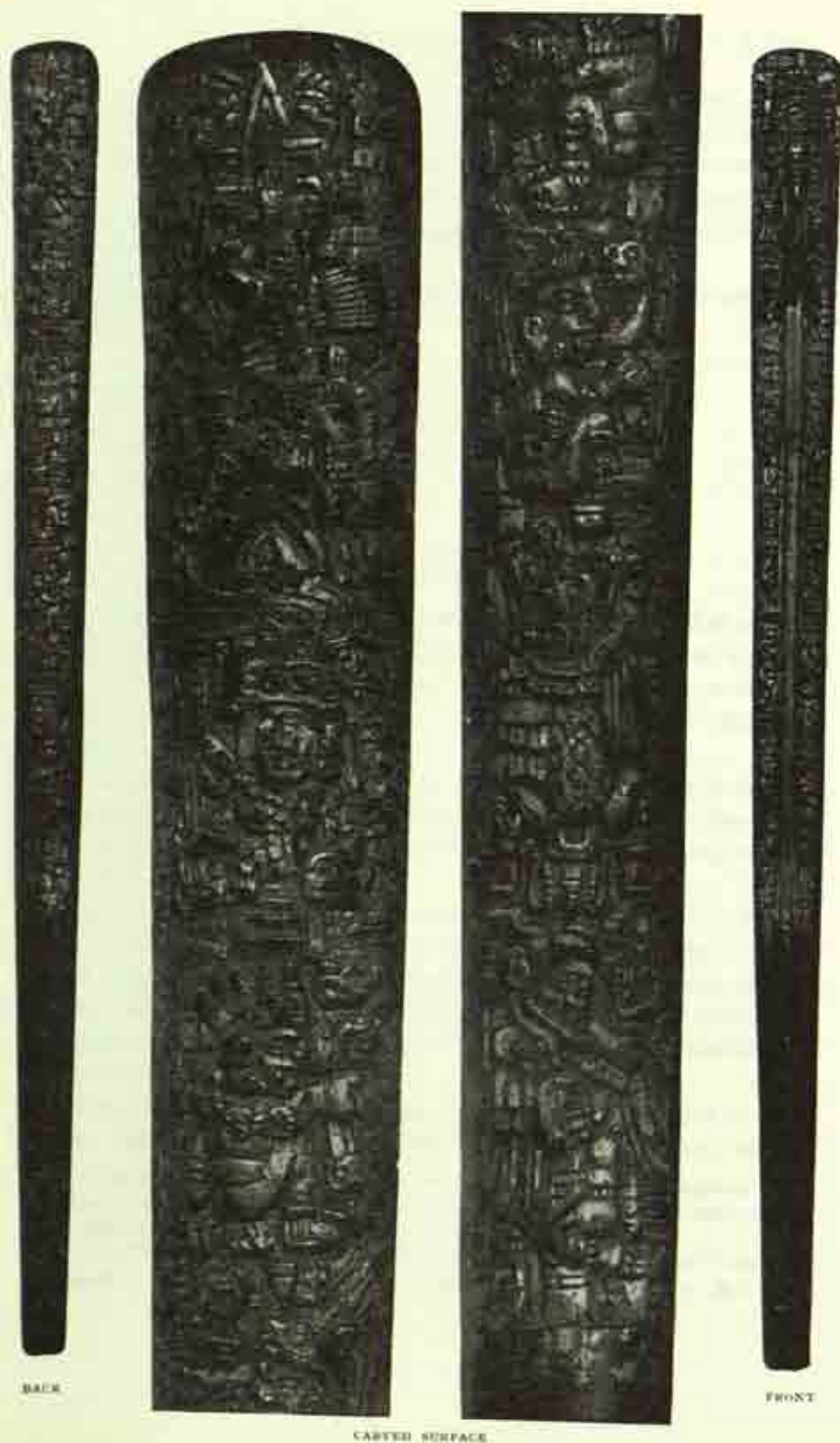
The great similarity of the three atlats will be apparent to all who may compare the plates. All were undoubtedly ceremonial objects, as no actual weapon would have been so elaborately decorated and covered with gold.

In addition to the two atlats there are four other objects in Florence, which probably belonged in the first instance to the Cortés collection, one being an alabaster mask preserved in the Gem room of the Uffizi gallery, a small jade figure and an obsidian mirror in Professor Giglioli's collection, and the Codex in the Biblioteca Nazionale.

The mask (pl. xix, a) is formed of a very beautiful piece of alabaster, light green in color. The greatest width is 155 mm.;

¹ When the two Florence specimens were obtained by Professor Mantegazza, they were in an old leather-covered case in which they had evidently been kept for many years. This may account for their more perfect state of preservation.

² It will be seen that these figures differ slightly from those given by Mrs Nuttall in her paper, "Atlatl or Spear-thrower," published by the Peabody Museum in 1891.



BACK

CARVED SURFACE

FRONT

ANCIENT MEXICAN ATLATL IN THE KIRCHERIANO MUSEUM, ROME. (Full size.)

the length, 160 mm. Originally there was a projection on each side; the one on the left has been broken, but the one on the right is perfect. There are two similar ridges on the back. All are perforated, and the perforations are worn, showing the effect of the cords which were used in fastening the mask. Unfortunately the eyes are not the original ones; they are made of glass but appear to be very old. There is also some question as to the age of the painting in the mouth; very little of it is visible, and it was evidently done many years ago. However, even with these retouches, if such they really are, the mask is very interesting historically, and for that reason, if for no other, is worthy of illustration here.

The jade figurine in Professor Giglioli's collection (pl. xix, *b*, *c*) is 55 mm. high. The color is dark, mottled green. About the year 1650 this object was in the collection of Cardinal Guadagni in Florence. Its history before that time is not known, but it probably belonged to the same collection as the other objects from Mexico.

The Kircheriano Museum in Rome is fortunate in possessing, in addition to the one atlatl, five specimens of great rarity, from Mexico. These are incrustated objects consisting of two masks, two knife-handles (unfortunately the blades are missing), and a human femur formed into a musical instrument. They have already been described and figured by Professor Pigorini.¹ These, together with the three atlatls, the mask in the Uffizi, the figurine and mirror in Professor Giglioli's collection, and the two codices—one the Codex Borgiana, now in the Vatican; the other preserved in the Biblioteca Nazionale in Florence—both of which have been reproduced, probably once belonged to the famous collection of the Medicis. No other objects of Mexican origin belonging to that collection are now known to be in Italy, but it is not impossible that others may be hidden away, to be revealed from time to time.

In the paper to which I have referred, Professor Pigorini traces fourteen other examples of incrustated objects of Aztec origin which are now the property of different European collections. These include seven in the Christy collection in the British Museum; one in a

¹ Luigi Pigorini, "Gli antichi oggetti messicani incrostatati di mosaico esistenti nel Museo preistorico ed etnografico di Roma," *Memorie R. Accad. dei Lincei*, ser. III, vol. XII, pp. 336-342, Roma, 1885.

private collection in England; two in the Ethnographical Museum in Copenhagen; three in the Ethnographical Museum in Berlin; and one said to be in Gotha. With the five pieces in Rome there are thus nineteen known specimens in various parts of Europe; but many, if not all, were at one time in Florence.

The best-preserved and most interesting of the specimens in Rome is a mask representing a human face. The entire length is 280 mm. and the width is about 135 mm., approximately life size. The inner surface is plain, while the outside is covered with mosaic, which for the greater part is of turquoise outlined with pearl. Professor Pigorini¹ has been able to trace the history of this most interesting piece for more than three and a half centuries, finding this entry in the *Inventario della Guardaroba Medicea*, 1553: *Una maschera Venuta d'India composta di turchine sopra il legno*. This is the first of a series of references to the same mask made in different lists.

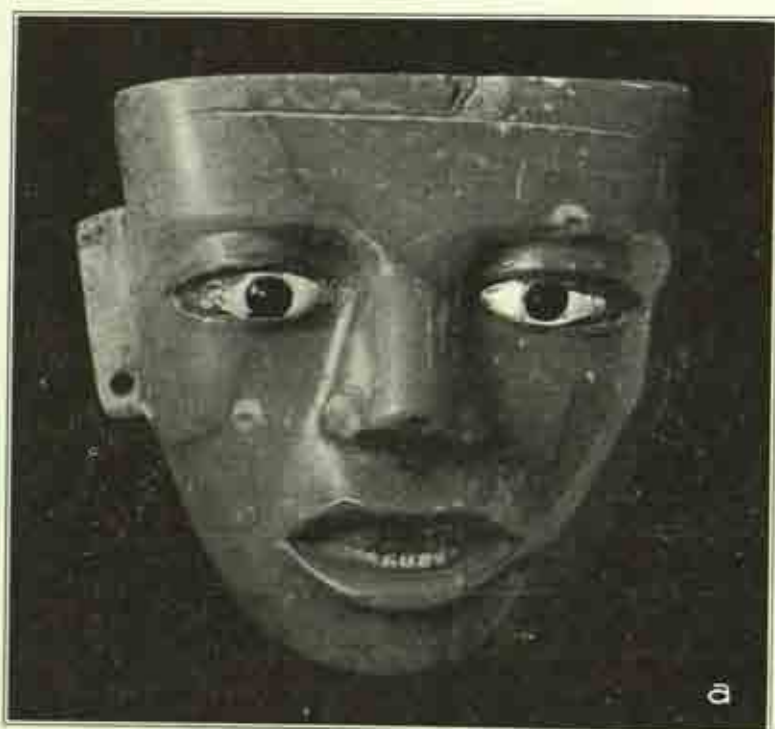
The art here illustrated as practised by the ancient Mexicans is another link connecting the culture of that people and of the earlier pueblo-dwellers of New Mexico and Arizona. In no other part of North America is the art known to have been followed; in both the regions indicated turquoise was the principal material of which the mosaic was formed, and although the incrustated objects from the two localities are very different in form, there is a similarity in the workmanship that suggests a connection between the ancient peoples.

Of special interest is a small collection from the northwest coast of America, now in the Anthropological Museum in Florence. It includes thirty-four pieces, all of which were collected by Captain Cook during his third voyage, in the year 1778. This collection has already been described and many of its objects figured by Professor Giglioli.²

Of the thirty-four specimens, twenty-three were obtained in the vicinity of Nootka and include garments, ornaments, weapons, and

¹ Op. cit., p. 338.

² E. H. Giglioli, "Appunti intorno ad una collezione Etnografica fatta durante il terzo viaggio di Cook," *Archivio per l'Ant. e la Etnol.*, vol. XXV, pp. 120-161, Firenze, 1895.



Aztec Mask in the Uffizi Gallery, Florence. (3/4)



Front (b) and side (c) views of a jade figure in Professor Giglioli's collection. (Exact size.)

ceremonial objects, for the greater part in a good state of preservation. Four hats in this portion of the collection are of interest, as they are probably the specimens which were figured in the account of the voyage. Two are conical in form, terminating in a point; on each are represented four large whales and many canoes. The others are smaller and lower, having flat crowns and being decorated with a symbolic design painted in red, blue, and black.

Two capes made of narrow strips of cedar bark, braided, and continuing as a fringe at the bottom; a bracelet made of horn, and two wooden combs, highly decorated and well preserved, were collected at Nootka. Other specimens from the same locality are several harpoon points; a bow 1,135 mm. in length; and a wooden mask representing a human face, skilfully made. Two very fine examples of the bone club, both well decorated with characteristic carving and in an excellent state of preservation, belong to the same collection. The remaining eleven objects forming the Cook collection consist of harpoons and smaller weapons from Prince William sound, Norton sound, and Unalaska. Considered historically this collection possesses great value in addition to the rarity and interest of the specimens.

There are a few very interesting objects from the same part of North America, preserved in the Kircheriano Museum in Rome.

Professor Giglioli's collection of material from the northwestern part of North America is very rich and complete, and includes a large series of hafted implements and weapons from Vancouver island and northward. The most interesting of these are to be figured in a work descriptive of the entire collection which he has now in preparation.

The greater portion of the collections from North America belonging to the Italian museums consists of specimens from the central and eastern sections of the continent, representing the work of the Sioux, the Algonquians, and the Iroquois. Certainly there are a number of very interesting objects in the various collections. Some bear a date, or a few words of an old inscription which offer a clue to their history; but in the great majority of cases there is absolutely nothing known of the pieces—no records of when or

where they were obtained. This is to be regretted, as many may have an interesting history which can never be known.

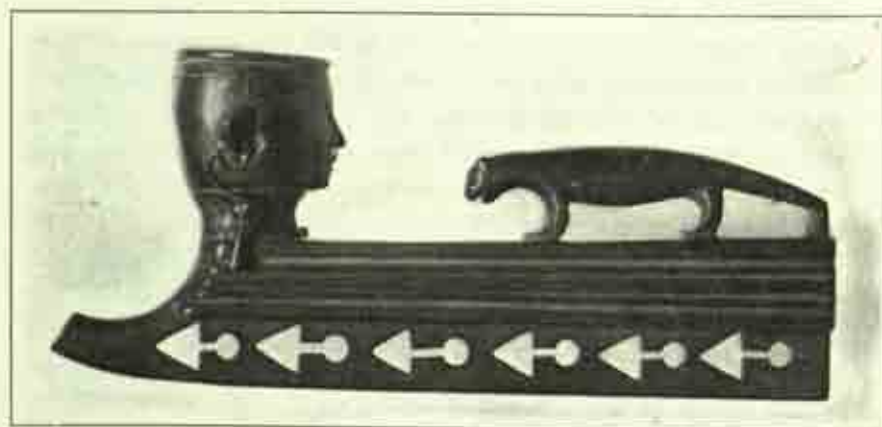
Among the specimens in the Anthropological Museum in Florence are two pairs of moccasins and a knife-sheath, all being the work of eastern tribes. These were acquired by the museum in 1828. They are interesting old pieces, such as are very rare in American collections.

Of the two pairs of moccasins (pl. xx, *a*), one appears to be quite old and dates probably from the latter part of the eighteenth century. Along each side of the top, or opening, is a piece of buckskin, 140 mm. in length and 60 mm. in width, covered for a distance of 40 mm. from the top by a band of porcupine quillwork dyed red. This band is composed of four narrow rows, the whole being surrounded first by a single row of twisted quills dyed yellow, then by a narrow band of quills colored red and white. To the lower end of the latter are attached tufts of moose hair, also dyed red, each tuft being covered for a distance of 15 mm. with a thin metal band, between which and the edge of the buckskin is a knot of red quills. Three narrow rows of quills extend down the back seam and also down the top from the opening to the end. Tufts of hair similarly dyed and partly covered with metal are attached to the end of the band above mentioned. The upper half of the quillwork on the front is bordered on each side by a single row of eight wampum beads, alternating purple and white. Attached to the lower ends of the rows of beads are tufts of hair, similarly dyed and covered. From the point of attachment a narrow line of quills runs off at an angle; at the end of this line is one white wampum bead. The moccasins were originally red, as were the hair and the greater portion of the quill work. On each of the side bands, however, there are two diagonal lines, each formed of six folds of quills, two white, two purple, and again two white. Near the middle of the bands on the front and the back are crosses with purple centers, two folds of white quills forming each of the four sides.

The second pair of moccasins belonging to the collection under consideration are each made of a piece of very thin doeskin, colored black. The decoration, a floral design, is formed of quills dyed various colors. The edge is bound with red silk of an old weave.



a—Moccasins in the Anthropological Museum, Florence.



b—Old Catlinian Pipe in Professor Giglioli's Collection. ($\frac{1}{2}$)

These moccasins were never worn and are now as fresh as when they were made, although they have been in Florence since 1828.

The knife-sheath mentioned above is shown in plate *xxi, a*. It is an interesting example of eighteenth century work, being made of heavy buckskin, colored black, similar to the moccasins just described. The extreme length is 280 mm.; the pocket alone is 190 mm. long. The decoration is folded quillwork, forming a lozenge-shaped pattern, each line being made up of three rows of quills—one red, one white, and the third blue. Across the top of the pocket are two bands of folded quills; a fringe, formed probably of tufts of deer or moose hair, formerly extended along the bottom edge of the lower of these decorated bands, but it has disappeared, only the fourteen narrow strips of skin to which it was attached now remaining. A narrow band of quillwork runs along the edge of the top. The whole sheath is outlined with small white opaque beads of European manufacture.

The second and smallest specimen on plate *xxi (b)* is one of two similar pieces in the same collection. This is not a very old piece, but is interesting on account of the material of which it is made, namely, the scaly skin of the tail of a beaver.

The third sheath (pl. *xxi, c*) is an unusually good example of a western type, made of heavy skin. The length is 280 mm. and the width at the top 90 mm. The quillwork decoration of the band is well made and the quills are dyed various bright colors. The long fringe is bound at intervals with white quills and terminates in tufts of hair, colored red. The edge of this sheath is outlined with a narrow line of quills, alternating red, white, and blue.

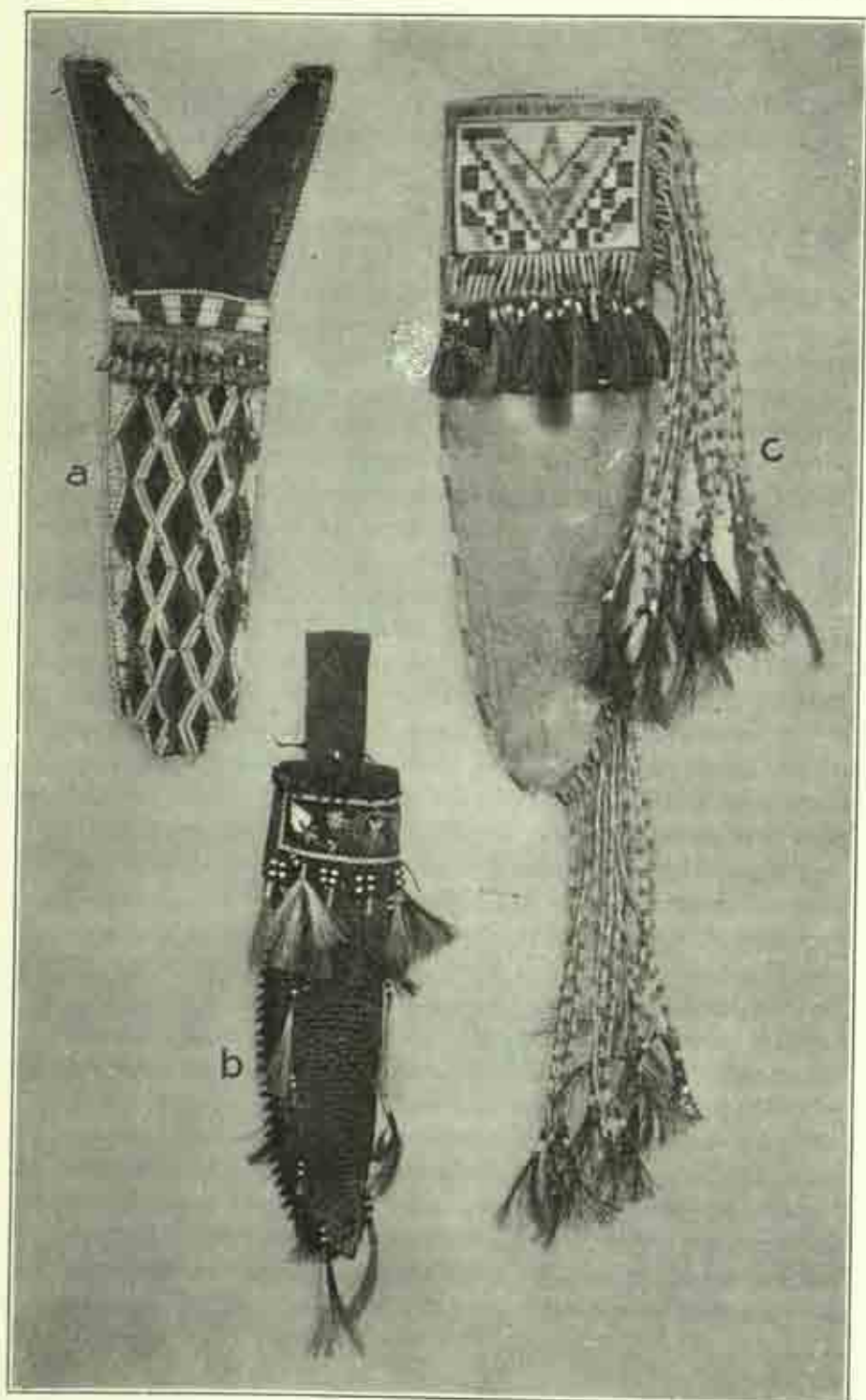
In the Kircheriano Museum in Rome there are four specimens which were collected by Maximilian, Prince of Wied-Neuwied, among the Omaha. One is a knife-sheath somewhat similar to the one just described, a horse bridle, and a saddle blanket, the last two having a similar decoration in quillwork. The fourth object and the most interesting is a club formed of a natural root, gnarled and knotted at one end and tapering to the other. The smaller end is bound with tanned skin, which served as the handle; around the upper end of the skin wrapping is a band of quillwork similar in design and workmanship to that on the other objects. The entire

length of the club is about one meter. The sheath in the Florence Museum probably belonged originally to the same collection as this club.

The small museum in the Collegio di Propaganda Fide, in Rome, has a very rich ethnological collection from Africa and a small miscellaneous collection from other parts of the world, including a few notable and rare objects from North America.

The gem of the North American collection is a piece of wampum, which is probably the finest existing example of that form of art. This superb specimen is formed of fifteen rows of beads aggregating 1,940 mm. in length and 108 mm. in width. Each row consists of 646 beads, making a total of 9,690. Although made in a single straight piece in the regular form of a 'belt,' this was evidently intended for an entirely different purpose. As will be seen in plate XXII, it has been arranged and fastened in such a manner as to form a loop, allowing the ends to hang to an equal length. This peculiar form, as well as the figures and symbols which are represented in white beads, makes it appear to have been intended for use as a stole, and it is so designated in the museum. It was probably made for some missionary in the St Lawrence valley or in the Iroquois country. As has already been stated, there are fifteen rows of beads. Between these there is a narrow strip of tanned buckskin extending the entire length and continuing as a fringe at each end. The beads are strung on two threads of sinew, one of which passes on each side of the intervening strips of buckskin.

The interesting designs represented in white beads suggest on one side Christianity, on the other paganism. Considering this object as a stole with the ends hanging down in front, the first figure on the right is probably intended to represent the chapel of the mission. One window is represented, as well as a cross over the doorway; next are several characters which may identify the mission; beyond these are two keys, crossed, the meaning of which is obvious. The two figures in the middle evidently represent the missionary and an Indian, the former being on the right, and the latter on the left, holding a cross, the Christian symbol, between



INDIAN KNIFE SHEATHS IN THE ANTHROPOLOGICAL MUSEUM, FLORENCE

them. The figure which is assumed to represent the Indian is holding another object also, but what it is, is difficult to say. Beyond this figure is a zigzag pattern ending in what seems to represent two arrows, crossed. Next is a human figure, an Indian grasping a bow in one hand. The last two designs suggest a pipe and a pine tree. It will be noticed that the designs on the two extreme ends are different.

That the history of this unique piece is not known is to be regretted; but its presence in the museum in the Collegio di Propaganda Fide may be accepted as proof of its having been brought from America by a missionary.

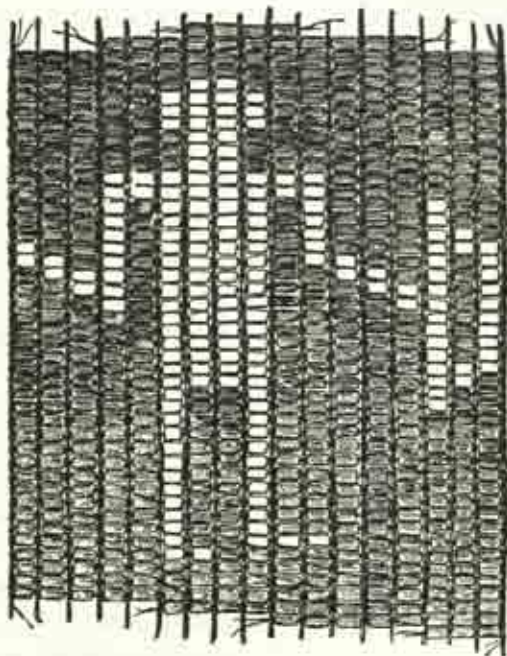


FIG. 12.—Figure on a Huron wampum belt in the Trocadero Museum, Paris.

There is a similarity between the figure of the Indian holding a bow, on the piece just described, and four figures on a Huron belt presented by Professor Hamy in his work illustrating the *Galerie Américaine du Musée d'Ethnographie du Trocadero* in Paris. The accompanying sketch (fig. 12) of one of the figures on that belt was made from this illustration. While the figures on the specimen now in Rome are placed across the band, those on the other extend lengthwise, as may be seen by comparing the two illustrations.

The large Onondaga belt figured by Professor Holmes¹ is a trifle longer than the specimen in Rome, each now being formed of 650 beads, and there is close similarity in the human figures represented on both pieces.

There are other examples of wampum in the same collection, all of minor importance in comparison with the one described, but interesting nevertheless. One is a small band, about 250 mm. in length, formed of four rows of beads. The beads appear to be old and much worn; but they have been newly strung on yellow wool, which detracts greatly from the value of the piece. Two small pipes, made of grayish steatite, with an opening for the stem forming an acute angle with the bowl, have each a perforation through the under part. To each of these is attached a single string of wampum, alternating purple and white. Both pipes are new, never having been used; but the beads, like those forming the small band, appear to be old—certainly much older than the pipes to which they are attached. These three pieces seem to belong together, and the beads may be the remnants of an old belt. It is not known when or where the specimens were collected.

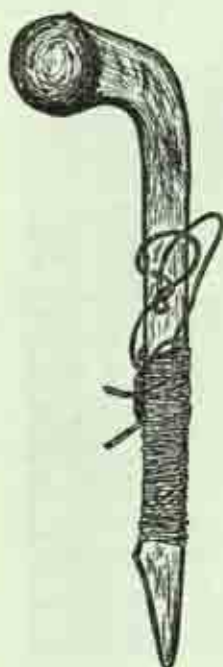
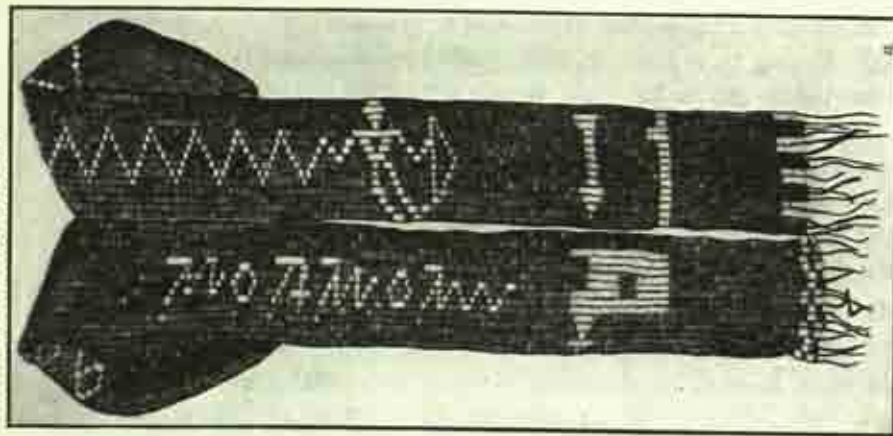


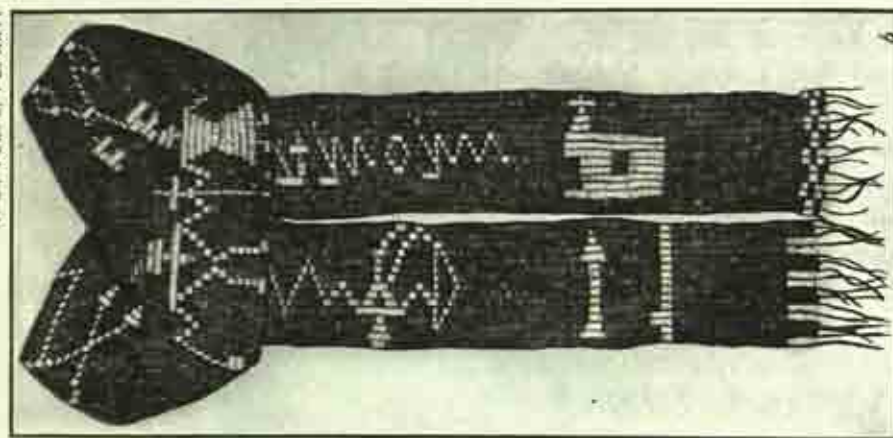
FIG. 13.—Small club in the Museum of the Collegio di Propaganda Fide, Rome.

Another object worthy of attention in the same collection is a small club (figure 13). The dimensions are: length 320 mm.; the handle, which is rectangular in section, is 23 mm. wide and 11 mm. thick; the ball at the end is 47 mm. in diameter. The whole is made of a single piece of wood, rather heavy and dark in color. It shows the effect of long use, being much worn and highly polished. Long, narrow strips of tanned buckskin are wound round the lower part of the handle; probably these were originally wound smooth and even, but they have become loosened. At short intervals the strip of skin is bound with porcupine quills colored red and white. The question naturally arises, for what purpose was this small club used? It is too small and light to have been serviceable as a weapon, although in form it resembles

¹ Art in Shell of the Ancient Americans, in *Second Report of the Bureau of Ethnology*, 1883, pl. xlii.



FRONT



BACK

the primitive club of many American tribes. It may have been used as a drumstick, for which purpose it would have served admirably.

Both museums in Rome, the Kircheriano and that in the Propaganda Fide, have interesting old examples of small boxes made of birch bark, with covers, the whole being decorated with porcupine quillwork in various designs. An unusually large and fine specimen is in the latter museum. In the same collections are several strips of birch bark and thin strips of cedar, covered with symbols and totems of Algonquian origin. The pieces of bark were at one time folded and attached in the form of a book, but it is evident several pieces are missing.

Among the specimens from the eastern part of America in Professor Giglioli's collection is one of special historic interest. It is an adz or gouge made of granite, 215 mm. in length, 62 mm. in width, with a maximum thickness of 37 mm. Attached to it is a label, so old and discolored that only the first part of the writing can be deciphered; it reads:

HACHE DES INDIENS QUI SOUS LA CONDUITE DE LEUR CHEF BRANT, EN 1790, MASSACRERENT ET PRECIPITERENT DANS L'HUDSON 25 PERSONNES SOUS LE COMMANDEMENT. . .

On a small label is written:

TUSCARORA — SPLITTING FOOT.

There is no reason to doubt the authenticity of the labels, so faded and discolored they are; and it is interesting to know that the so-called adz was probably used as a weapon, and that at a comparatively late day.

Many excellent catlinite pipes are to be seen in the older collections in Europe, a number of them having the characteristic stem often a meter in length and decorations of quillwork, tufts of hair, or feathers.

One very good specimen in the Propaganda Fide bears a label on which is written:

PIPE OFFERTE À SA SAINTETÉ PAR LE CHEF MA-ZA-KAH AU NOM DES SIOUX ET DE SAUTEUX,

but unfortunately neither date nor locality is mentioned. The pipe

is rather large and well leaded ; the stem is long and flat, and is partly covered with quillwork.

In the Kircheriano Museum in Rome, as well as in the Anthropological Museum in Florence, are preserved several excellent examples of pipes. One in the former collection, made of a piece of beautiful catlinite, and having a long base and a conical bowl, is decorated with narrow bands of lead. The stem belonging to it is nearly a meter in length and for about one-third of the distance from the mouth-piece is covered with excellent quillwork. This is divided into five panels or sections of equal size. The first, third, and fifth sections are white and have in the center a thunder-bird in black ; the second and fourth have a red ground, the former being plain while in the latter there is a thunder-bird worked in white quills. The sections are divided by two narrow lines of black quills, between which are dots of black and white. The decoration on the other side is rather different.

A long inscription written on the stem is so badly rubbed and worn as to be scarcely legible ; however, it is possible to make out the word "Commissioner" and the date, "Aug. 20th 1825." Now, during the month of August, 1825, a United States 'commissioner,' Governor Lewis Cass, met representatives of different tribes, including the Ojibway, the Sauk and Foxes, and the Sioux, at Prairie du Chien, Wisconsin, and there formulated a treaty which was signed on the 19th day of the month named. It is safe to consider this pipe as being one used by the Sioux at that time, as the date it bears was the day after the signing of the treaty. It is unfortunate that we cannot read the entire inscription, for it would probably be of historical value.

There is another pipe, also in the Kircheriano Museum, which may have been obtained at the same time. It also is of catlinite, not leaded, but having above the base, back of the bowl and facing the smoker, the figure of a small animal, probably intended to represent a mink or a marten. The stem belonging to this pipe is nearly a meter in length, broad and flat, and covered for about one-third of its length with quillwork alternating in plain broad bands in red and yellow.

Two bags, one made of an entire beaver skin, the other of the skin of a smaller animal, probably date from the same period.

Originally both were excellent specimens, the tails being covered with elaborate quillwork; but now they are in a poor state of preservation.

Returning to the subject of pipes, the Florence Museum has some very good examples of both Sioux and Algonquian work.

One Sioux specimen has an excellent stem, exactly one meter in length, covered with quills for a distance of 310 mm. from the smaller end. This is divided into sections similar to the pipe in Rome, and the pattern is also the same; but nothing is known of its history.

A curious specimen in this collection is an elaborately carved pipe of greenish steatite, measuring 135 mm. in length. Originally three human figures were represented astride the base, but the greater portion of two of them has been broken and lost. This belongs to the same class of work as the "Chippewa pipe" figured by Doctor Wilson.¹

An unusually beautiful old catlinite pipe in Professor Giglioli's collection is figured in plate xx, *b*. The ornaments attached to the ears and nose are of silver. This piece was obtained in Paris some years ago and probably dates from early in the nineteenth century.

There are other objects in these institutions that have been brought from America. These include garments of buckskin, beaded moccasins and belts, knife-sheaths, and bags, all comparatively modern and of no special interest, but necessary to represent the arts of the native tribes. On the foregoing pages are briefly described the oldest and the most valuable and interesting objects from North America preserved in Italian collections. These, by the kindness of Professors Mantegazza and Pigorini, I have been able to study and photograph; and to Professor Giglioli I am under special obligation for advice and friendly interest, and for the benefit and pleasure derived from studying his magnificent private collection.

As the specimens illustrated in this article were never before photographed, I trust this short account of them may be of interest to students of American ethnology.

FLORENCE, ITALY.

¹ *Prehistoric Man*, vol. 1, p. 392.

RUINS OF THE CERRO DE MONTEZUMA

By A. H. BLACKISTON

The ruins of the fortifications and so-called watch-tower that crown the summit of the Cerro de Montezuma, southwest of and overlooking the remains of the famous Casas Grandes of Chihuahua, Mexico, have received as a rule but imperfect notice from the travelers and explorers who from time to time have visited this section. With the exception of the description in Bandelier's Final Report on Investigations in the Southwest¹—an excellent account in many particulars—and that in the Archives de la Commission Scientifique du Mexique, the descriptions of these ruins are either of a very meager nature or are decidedly misleading. Escudero briefly mentions them as partaking of the nature of a fortified watch-tower, and notes a number of lines of stone on the southern slope of the mountain; Clavigero, who never saw the ruins, gives a far from satisfactory though better description than Bancroft seems to suspect, but speaks of them as being defended on one side by a high mountain; Bartlett viewed them from a distance, while Lumholtz climbed the steep ascent but apparently lacked either time or inclination for a detailed account. The *Album Mexicano* also speaks of this monument as a fortress built of great stones, though it soars into the imaginary when alluding to walls 20 feet thick, and to the destruction of the buildings for the sake of the stone they contained—a manifest absurdity when it is learned that the stones are uncut and that the entire space between this point and the nearest habitations is covered with a superabundance of similar rock. And, indeed, even were this not the case, the task of removing stone from these ruins would prove of Herculean proportions for the somewhat shiftlessly inclined native of to-day.

Accompanied by a Mexican guide who did not display an unnecessary amount of enthusiasm, the writer crossed the plain and

¹ Papers of the Archaeological Institute of America, Am. Series, IV, pt. 2, Cambridge, 1892.

successfully climbed the Cerro de Montezuma, then veiled in clouds, though at times it was necessary to lead the horses and at others to encourage their exhausted spirits with an energy which we little felt like expending. A piercing wind swept across the crest and carried the snow in swirling eddies into the depths beyond, while the clouds, perceptibly thinning as we neared the top (the upper stratum having been reached), left a comparatively clear but by no means comfortable field for exploration.

About two miles southwest of the Casas Grandes lies the base of the mountain that forms the culminating peak of the range which borders the western side of the Casas Grandes valley, and upon which are situated the ruins that form the subject of this paper. An ancient road approximately six miles long leads from the former ruins to the summit of the mountain, winding around the precipitous sides and forming by far the most feasible route of ascent. In the lowlands its traces are faint and frequently lost, but higher it is not only most distinct, but for the greater part of its length has been either walled in along the exposed portions or cut into the mountain side. In sections the trail is from seven to eight feet wide, in others much narrower, preserving as a whole a uniform grade, though local conformations sometimes make an abrupt ascent imperative, but even then all obstacles were met with consummate skill. The most pronounced place of this character is at the point where the road enters the northern end of the platform from whose southern extremity rises the peak crowned by the main ruins.

This step or bench runs out into a bold promontory, and it is here that the "road of the Montezumas," as the natives term it, after many short, sharp turns and steep ascents among the great boulders, enters through a natural gateway in the rock, the village that grimly lies across its path. Every foot of this approach is commanded by fortifications placed in a manner that excites admiration, and in fact the entire village seems to have partaken of a military character, as it is most ably defended by walls and parapets of stone.

The houses, solidly built of the same material, are roofless, and in but a fair state of preservation, with the walls still standing to

the height of from 2 to 4 feet. Their number is about twenty-two, and among them are several of circular construction, one of which measures 19 feet 2 inches in diameter with walls 2 feet 10 inches thick. Near the center of the village is a large circular basin or depression 67 feet in diameter, on which opens a number of structures, the measurement of the best preserved one being 11 feet 3 inches in length, 5 feet 5 inches in width, with walls 2 feet thick. This ruin, once probably a store-house of some kind, had foundations of adobe rising about 2 feet from the floor—the only instance in which this material was observed. A depression similar to the large one just described, located in a village ruin many miles toward the headwaters of the Piedras Verdes river, was likewise examined by the writer. Regarding the original character of these basins but little can be said beyond the advancement of the theory that they were courts, the sides of which had been elevated by the falling walls of the surrounding houses. That they were reservoirs is hardly probable, as in the case first cited the necessary water supply for a receptacle of the size was lacking, while in the latter an abundance of water was near at hand.

But by far the most striking object in these ruins is the great stone wall running in a northwesterly-southeasterly direction along the eastern escarpment of the plateau, and measuring between 300 and 400 feet long, 5 feet thick, and more than 6 feet high on the outer side. Toward the central section project the ruins of what seems to have been a very formidable tower or redoubt, 18 feet in diameter, encircled at a lower level by an outer wall of great strength.

The inhabitants of this place exhibited a keen appreciation of its defensive possibilities and literally left no stone unturned to render it as nearly impregnable as possible. In the valley adobe was exclusively used as a building material, but here, with the exception noted, undressed stone solidly and neatly laid, as far as observed, without mortar, was exclusively employed, the individual stones averaging 1 foot long by 7 or 8 inches in thickness, and 3 or 4 inches in width, though in some cases, notably in the parapets, they reached much greater proportions. Indeed in one place the writer noticed two boulders each about 5 feet high.

Approximately 200 feet to the south of the village, near the point where the road begins to make the final ascent to the summit, lies a circular mass of stone 14 feet 5 inches in diameter, probably the remains of a tower, the location of which is significant as from a military point of view it could have been of but little service. The use to which it was devoted was evidently of a formal or religious nature, and probably bore an important relation to the ruins on the nearby peak between which and the village it formed the connecting link.

After passing along the crest of the plateau, past the solitary tower, the road clings to the precipitous western face of the mountain and finally, becoming smaller and less clearly defined, at a distance of half a mile reaches the summit.

Here on the very crest of the peak and around its sides, 2,000 feet above the valley, in an unsurpassed situation, lies a ruin of great interest. A circular wall, 56 feet 2 inches in diameter, incloses the remains of a tower or building 18½ feet square, whose sides, 2½ feet in thickness and from 4 to 6 feet high, face the cardinal points of the compass as in the case of the valley ruins, of the Casa Grande on the Gila river, and of the palaces and temples of Palenque and Mitla. To the east a projection about 10 feet wide with walls 1½ feet thick runs to the encircling wall which at this point is 5 feet 4 inches wide, while to the west its width is but a little more than 4 feet; the height of this wall is 6 feet.

Outside of this is another encircling wall, inclosing the inner one at a distance of 36 feet on the western and 64 feet 4 inches on the southern side. It varies in thickness from 1 foot 3 inches to 2 feet 7 inches, being thickest to the north and east. Strong outlying walls are numerous on the northern slope where several extensive works of this nature lie between the summit and the village, while a number of roads or trails lead in various directions to the lowlands, the most important being the one already described.

Though there seem to have been far too few houses to shelter the garrison that must have been required to man effectively such extensive works, however large or small the number, the problem of an adequate water supply must of necessity have been of vital

importance. This need was probably satisfactorily met by means of a spring which, my guide informed me, was situated below the parapet where the road entered the village, but which the writer was unable to find on account of the depth of snow at this point. Two reservoirs were cut in the rock near the lower ruins to provide an additional supply of water.

We now come to the point of greatest interest in connection with these ruins, and one which in time may cast much light on the nature of the early culture of this region. About 90 feet down the western slope an opening that had been walled in was discovered a few years ago. With the dazzling beacon of buried treasure ever before their eyes, luring them farther into the heart of the mountain, several of the whites of this section began the task of opening the tunnel, which they found most solidly blocked. Up to the present time they have blasted their way along 135 feet of its length and have found that this subterranean passage descends by irregular gradations to a point directly under the ruins on the summit; what lies at the end of the tunnel is yet unknown. No signs of ore deposits or other indications of the presence of a mine have been encountered.

These features, taken in connection with other distinctive features later to be enumerated, seem to leave but little doubt that this ruin fulfilled a rôle other than that of a mere watch-tower, though from the great expanse of territory stretching before the eye from its elevation (a view which unfortunately the writer was obliged to miss) it is not to be supposed that this feature was by any means ignored.

Popular tradition among the natives unhesitatingly proclaims the remains to be the palace of the great king who reigned from these heights over the inhabitants of the Casas Grandes — a regal throne indeed, with its head among the clouds and its foot upon the golden maize fields of the valley. But popular tradition often lacks in accuracy what it supplies in imagination, and this case is not an exception. For it is probable that religion was the only great monarch that ruled from these ancient ruins, even as in many forms it has ruled before and since from the temples of the Old World and the New, from Thebes and Babylon, from Teotihuacan and Pachacamac.

For wherever his habitat or whatever his color, man is much the same throughout the world.

The elaborately constructed road would in itself seem to countenance the theory of religious origin — a mere watch-tower would need no such pathway ; while the extensive system of fortifications, the orientation of the crowning tower, its eastward projection, the tunnel under it, and the nature of the village guarding the entrance to the plateau, all point to the same conclusion.

That there was direct communication, religious as well as military, between these ruins and those of the valley, there is little doubt, but whether this partook of the sanguinary nature of the worship of Huitzilopochtli or of the complacent character of the Peruvian pantheon, it is impossible to conjecture. The past still veils in deep uncertainty the true signification of these remains, but it may yet be found that the key to the culture of the inhabitants of the Casas Grandes lies deep in the heart of the Cerro de Montezuma.

THE ICELANDIC COLONY IN GREENLAND

By VILHJÁLMUR STEFÁNSSON

NOTE. — There are three chief sources used in the following article : (1) the various Icelandic sagas, some of which deal largely with Greenland and Greenlanders, while others refer to Greenland events only incidentally ; (2) the Icelandic Annals, for and including the years 1288 to 1411 ; and (3) *Diplomatic Papers*, mostly papal documents relating to church affairs, although some of them are records of ecclesiastical courts, and similar chronicles. These three sources have been included in a three-volume compilation, *Grænlands Historiske Mindesmærker*, published in Copenhagen, 1838-45. The author of the present paper has relied chiefly on this authority so far as the Latin papers and the Annals are concerned ; in the case of the sagas he has used the Icelandic editions of them in the library of Harvard College.

The Northmen who inhabited the coasts of Norway, Sweden, and Denmark were, when history brings them into view, a seafaring people. At first they hugged their own coasts ; later they crossed the Baltic and the North sea and beat up and down the shores for purposes of trade or pillage — often discharging a merchant cargo and then turning to piracy. Becoming bolder with experience they " sailed directly west ", as the sagas have it, and discovered the Shetlands ; a little later they came upon the Orkneys and the north coast of Scotland. About the middle of the ninth century the Faroes became known to the Northmen, and in 874 the first settlement was made in Iceland. By 930 all of Iceland had been colonized, chiefly by those of the Norwegian nobility, with their retainers, who found the overlordship of Harald the Fairhaired too irksome. Harald became the first king of all Norway after the battle of Hafrsfjord in 872, when the opposition of the independent petty kings, of whom Harald had been one, was finally crushed.

The discovery of Greenland was the logical result of the settlement of Iceland combined with the lack on the part of the mariner of that time of compass or of means of accurately reckoning his position at sea, for a ship from Norway, failing to strike Iceland and not knowing its location, was almost certain to reach Greenland.

Thus it happened about the year 900 that a certain Gunnbjörn, of Norway, missed Iceland and found himself close to some skerries, with land in sight to the west. Though he had never been to Iceland he knew from descriptions that the shores before him were another land, and so he turned back. The skerries were thereafter known by the name of this navigator, and the tradition of them was preserved.

About the year 950 a man named Eiríkr the Red was outlawed in Norway for the killing of several people for whom he had a personal dislike. He went to Iceland, but there also certain persons did not please him; he killed some of them and was again outlawed, this time for three years.

Not wishing apparently to trust himself where he might find a disagreeable neighbor on each hand, Eiríkr set sail for Gunnbjörn's skerries and the land that lay beyond. It was in 982 he sailed, and the next three years he spent in exploring the coast, especially that part of it lying between Cape Farewell and Ikersuak, which he called Broad Firth. He selected a site for a homestead, named many mountains, islands, and bays, and called the country Greenland. He "said that people would desire going to it all the more if the land had a fair name." In 984 Eiríkr went to Iceland for his worldly possessions, and the next year he returned to Greenland as his new home.

This was the beginning of the colony in Greenland, which may fairly be called Icelandic, for the records show that most of the settlers came from Iceland. In one summer 25 ships left the west coast of Iceland bound for the new settlements; only 14 of these reached their destination, the rest being either lost at sea or driven back by ice and unfavorable weather. Allowing 50 emigrants to a ship, and this is considered a reasonable estimate by authorities on the navigation of the period, probably some 700 Icelanders went to Greenland the first summer. After this time the records mention only a few families who went there from either Iceland or Norway. What the population numbered when the colony was at its best, say in the twelfth century, must remain a matter for conjecture.

Grænlandia Vetus Chorographia, an ancient manuscript now lost, is quoted by the medieval historian Björn Jónsson. It gives some interesting facts about the colony and furnishes a basis for an estimate of its population.

There were two Icelandic colonies in Greenland: the Eastern and the Western. Both were on the southwest coast, for the east coast was then, as now, barricaded with ice. The Eastern settlement is considered to have reached from 60° to 61° north latitude, while the Western settlement was between 64° and 65°. After naming and describing various bays, islands, and other features in the Eastern settlement, Jónsson's account goes on to say:

"Thence (from the E. Settlement) it is vi days, rowing for vi men to the Western Settlement, then it is vi days, rowing to Lysu-firth, thence vi days to the Karl-Booths, thence iii days to Bear Island and twelve days around it. . . . It is said there are CLXXX dwellings in the Eastern Settlement and xc in the Western."

It seems reasonable to suppose that there were at least 10 persons on a farm, for in Iceland, the country most nearly analogous, the average is more than 20 to a farm. On the basis of 280 farms in the two colonies, the total population of Greenland at the time under consideration should have fallen not far short of 3,000.

The literary sources, as well as modern excavations and researches, give evidence that the manner of life in the colonies was essentially the same as in Iceland. Horses, cattle, sheep, and goats were brought from Iceland, and the barns provided for them are shown to have been of a type of construction essentially similar to that common in the mother country.¹

The two things that tended most to differentiate the conditions of life in Greenland from those prevailing in Iceland were (a) the greater difficulty in communicating from Greenland with the outside world on account of greater distance and more dangerous seas, and (b) the abundance in Greenland of game of various kinds either scarce or unknown in Iceland — bears, deer, foxes, seals, walrus, and other animals.

At first, communication between Greenland and Iceland and Norway was fairly frequent. After the new country was Christian-

¹ *Grænlandinga Saga*, by Professor F. Jónsson: Copenhagen, 1899.

ized in the year 1000, church documents throw considerable light on the life of the people; after 1124, when the first bishop of Greenland as a separate and independent bishopric was consecrated, papal letters and documents come to be of considerable interest. They show, among other things, that Greenland contributed, in walrus ivory, oil, and ropes of hide, its share toward the maintenance of the Crusades.

During the first two centuries of their history the Greenlanders proved themselves intrepid voyagers, sailing to Markland (probably Newfoundland) for "merchandise"; such is the term used in the Iceland annals, though house timber is probably meant. A ship which had "previously been in the Markland trade" from Greenland was driven upon the west coast of Iceland in 1347. This is probably the last authentic mention in Icelandic records of voyages to America.

It was early found useful to establish summer hunting stations far up the west coast of Greenland, for game was much more abundant there than near the settlements; besides, in many cases, those who killed game within the limits of the colony were forced to give a certain proportion of it to the church. Voyages to the north therefore became frequent, and it is from the account of one of these that we get the earliest intimation that the colonists were beginning to dread the approach of the Eskimo. Our authority is the Icelandic *Hauk's-Book*; the voyage spoken of took place in the year 1266.

"The summer that the priest Arnaldr left Greenland . . . there were found in the sea pieces of wood that had been hewn with small axes or knives, and one piece that had stuck in it rows of teeth and pieces of bone. That summer also there came from Northr-Seta (one of the summer hunting stations to the north) men who had gone farther north than anyone else, so far as was known. They found no dwellings of savages except in the heath above Krok-Firth, and it is therefore men think that that is the nearest way for the savages to come (upon the settlements) from the lands which they inhabit.

"Then the clergy fitted out ships to discover what there was farther north than they had ever been before, and they sailed beyond Krok-Firth Heath *until the land became lower*.¹ Then there came a south wind, with

¹ This may possibly mean that they sailed out to sea, i. e., toward America, until the receding land looked low on the horizon.

darkness, and they had to drift before it. When it cleared they saw many islands and various kinds of game — seal, whales, and a great number of bears. They went quite to the bottom of the bay, and all the land was lower that way, both the land to the south and the glacier, for there was a glacier to the south of them as far as the eye could reach. They found some old-looking savage dwellings, but they could not land for fear of the bears. Then they proceeded another three days and found more savages' dwellings in some islands south of Snow Head."

Later on, in describing the land in which these most remote hunting stations were situated, the same account says:

"No wood grows there, but there is driftwood. This northward extension of Greenland especially abounds in trees and other drift materials that come from Markland. The Greenlanders must continually keep up sailings to the north, both for game and for driftwood."

To show how far north these earliest arctic voyagers penetrated, the Danish archeologist and traveler, Daniel Bruun, cites the fact that in 1824 there was found 20 miles north of the most northerly Danish post, Upernavik (north latitude $72^{\circ} 55' 20''$) a small Icelandic runic stone. This was discovered in one of three ancient stone heaps which are built there in a hillside, evidently as a landmark to sailors. The inscription on the stone reads: "Erlingr Sighvatsson, Bjarni Thortharson, and Indrithi Oddsson, the Saturday before Rogation Day (i. e., April 25) raised these *vörður* and leveled the surrounding ground."

In the fourteenth century contact with the Eskimo became more frequent and the settlers began to feel their nearness as a source of impending danger. Their fears were soon realized, for about the middle of the century the Western settlement was completely destroyed. No eye-witness escaped to tell the tale to the Eastern colony, whose people, after passing some years without communication with the sister settlement, finally fitted out an expedition under the command of one Ivar Barthsson, a Norwegian who came to Greenland in 1341 as superintendent of the bishopric farm of Garthr. Later this man went back to Norway, and there told to another person, who transcribed them, the facts which go to make up the well-known *Description of Greenland*, by Ivar Barthsson. A translation of a few lines from this work follows:

"In the western bay there stands a large church, known as the church of Steinsnes; this was once a 'chief-church' and the seat of a bishop.¹ Now the savages have destroyed the Western Settlement; there still are there horses, goats, cattle, sheep—all wild, for there are no people, Christian or heathen.

"All these things were told by Iffver Bardsen, a Greenlander, who was overseer on the farm of the Bishop of Greenland at Gardum for many years. He had seen all these things and he was one of those nominated by the judge to go to the Western Settlement against the savages to drive them thence. But when they got thither they found no man, Christian or heathen, but some wild cattle and sheep. These they used for food, and took as many of them as the ships could carry. With these they sailed home, and the above mentioned Iffver was with them."

The next paragraph in the tragic history of the Greenlanders is written in the Annals of Iceland under date of 1379. It reads: "(This year) the savages made war on the Greenlanders and killed XVIII of them. They (the savages) captured two boys and carried them away."

Another indication that the Eskimo were by this time spreading themselves over much of the south of Greenland is found in the account of the shipwreck upon an uninhabited part of the coast, of Björn the Pilgrim (Björn Jórsalafari) about the year 1386. He rescued (apparently near Cape Farewell) two savages whom he found on a reef that would have been covered at high tide. They were taken along with the party as servants, and Björn mentions the fact that they used for sewing fibers made from the intestines of "whales."²

For the year 1448 we have an important papal document in response to an appeal from the churches in Greenland for aid from the Holy See. The letter from Rome recites that, 30 years before, the barbarians (elsewhere in the same document called "the heathen") had made a descent upon the settlement, destroying houses and churches, so that "there are now but 9 parishes where churches are maintained."

¹ Probably a farm at which the bishop of Greenland (called in papal documents "Episcopus Gardensis") resided when visiting the Western settlement.

² Various sea animals, ranging in size from the porpoise upward, are in Icelandic collectively known as "whales."

Because the disturbers are sometimes referred to as "heathen," and because the prisoners are said, in the letter, to have been enslaved for a time and then sent home, it is conjectured by some that the English, who about this time concluded a peace with Denmark and exchanged prisoners, are the "heathen" spoken of as raiding Greenland. Whether His Holiness was in the habit of referring to the English of the period as "heathen" the writer of this paper does not know.

In regard to the identity of the raiders the opinion of the learned Icelandic bishop, Hans Finsses, is of interest, for he had at his disposal manuscripts which are now lost, many of them through the burning in the last century of the manuscript collection of the University of Copenhagen.

"So far as the identity of the enemy is concerned," says the bishop, "it can be concluded with certainty that they came from the nearby coast of America or from farther up the west coast of Greenland, for the Icelandic manuscripts frequently speak of the 'skrælingar' as a people who came in vast numbers on a fleet of skinboats and armed with spears and bows."

Historically the Bull of 1448 may be considered the last word on the original Icelandic settlements in Greenland, although there is another Bull early in the pontificate of Alexander VI which throws some light on the situation in Europe. It confirms the appointment (*ca.* 1493) of the Benedictine monk Mathias to the bishopric of Greenland, and goes on to tell that no ships have come from there for 80 years, that the people have mostly fallen away from the true faith, and that this monk will endeavor to bring them back to the church.

But archeological investigations made under the auspices of the Danish government have brought to light several things and have hinted at further discoveries. Remains of huts built on mountaintops have been found, and it seems unlikely that these could have been used otherwise than as lookouts for detecting the approach of an enemy. None of these are mentioned in the literary sources, and none similar were built in Iceland, so far as known. Many of the house ruins excavated show evidences of destruction by fire, and the popular traditions of the Eskimo of the district say that many

of the Original People (Kablunokks) were destroyed by being burned in their houses.

In 1880 the Dane G. F. Holm¹ visited and examined carefully many of the old Norse ruins, and in 1894 the archeologist Daniel Bruun² completed a more detailed survey. Their descriptions, drawings, and photographs leave no doubt in the mind of anyone familiar with Icelandic archeology that the ruins are Icelandic.

It is to be expected that among the more conspicuous ruins would be those of churches. At the height of the colonics' development there are recorded twelve churches and two monasteries in the Eastern settlement and four churches in the Western. The "Dome-church" at the bishopric, Garthr, has been found, as well as the ruins of five other churches. The total interior length of the church at Garthr was found by Bruun to be 25 meters, and this is considerably the largest ruin. One of the ruins — the church at Kakortok near Julianehaab — is so well preserved that the walls and gables stand practically intact. In some cases, as at the bishopric, the stone of the old buildings has been used for the construction of modern Eskimo houses, and nothing of the former now remains but the foundations.

In excavating the churchyards, finds of some importance have been made; from that at Ikigait an Icelandic runic stone was recovered, together with a small wooden cross, some fragments of clothing, and other relics.³

At the bishopric, Garthr, a cow stable has been found containing stalls for a hundred head of cattle. This accords well with the *Speculum Regale* and other early sources, which speak of cattle, sheep, goats, and horses as important in the life of the Greenlanders; butter, cheese, and woolen cloth were among their important articles of trade. Besides remains of barns there have been discovered plots of ground leveled for meadows and surrounded by low earth walls, as is still the case in Iceland.

¹ *Meddelelser om Grønland*, vi (second printing), Copenhagen, 1894.

² *Ibid.*, xvi, Copenhagen, 1896.

³ Daniel Bruun, *Det hvide Nord*, Copenhagen, 1902.

Considering the historical and archeological evidences together, it seems probable that the Icelandic colony in Greenland was destroyed by the Eskimo rather than assimilated with them. Apparently there are few, if any, traces of early Scandinavian influence upon the culture of the natives, and the word for *sheep* is said to be the only Icelandic term that has survived in the language of the Eskimo.¹ There are Icelandic traditions, probably not well founded, to the effect that the main body of the Eastern colony moved over to Markland (America); this is especially discredited by the almost certain knowledge we have that the Greenlanders of the time were in possession of no seaworthy ships.

When the colony came to an end will probably always remain doubtful. When connection with the outer world ceased their power of resistance may have declined faster than it did before, though it is certain that the period of highest prosperity had already been passed, owing to the oppressive trade monopoly long maintained by Norway through the merchants of Bergen. The colonists possibly survived into the sixteenth century; the Pope appointed bishops of Garthi as late as 1520, but this fact may evidence a desire to bestow an office rather than a genuine belief in the existence of the colony. The Eskimo traditions represent a period of struggle where their enemies held out for a long time even after there was but one farm left to them. This, the same traditions say, the Eskimo at last succeeded in burning. As already stated, several of the ruins show evidences of destruction by fire, and this final conflagration may have taken place while the country's last bishop, Vincentius, held the title "Episcopus Gardensis" in Europe, toward the middle of the sixteenth century.

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¹ It has been pointed out by the editor of *Grønlands Historiske Mindemarker* that the geographic term *utiblik*, used by the Greenland sagas, cannot be Icelandic and is probably a corruption of the Eskimo word *itiblik*. If that be so, it would go to show earlier contact with the Eskimo than other sources would lead us to accept.

UNWRITTEN LITERATURE OF HAWAII¹

By NATHANIEL B. EMERSON

The *hula* — the dance, with its songs and ceremonies — stood for very much to the ancient Hawaiian; it was to him in place of our concert-hall and lecture-room, our opera and theater, and thus became one of his chief means of social enjoyment. Besides this it kept the communal imagination in living touch with the nation's legendary past. The *hula* had songs proper to itself, but it found a mine of inexhaustible wealth in the epics and wonder-myths that celebrated the doings of the volcanic goddess Pele and her compeers. Thus in the cantillations of the old-time *hula* we find a ready-made anthology that includes every species of composition in the whole range of Hawaiian poetry.

This epic of Pele was chiefly a more or less detached series of poems forming a story addressed not to the closet reader, but to the eye and ear and heart of the assembled chiefs and people; and it was sung. The Hawaiian song, its note of joy *par excellence*, was the *oli*; but it must be noted that in every species of Hawaiian poetry — *mele* — whether epic, or eulogy, or prayer, sounding through them all we shall find the lyric note.

The most telling record of a people's intimate life is the record which it unconsciously makes in its songs. This record which the Hawaiian people have left of themselves is full and specific. When, therefore, we ask what emotions stirred the heart of the old-time Hawaiian as he approached the great themes of life and death, of ambition and jealousy, of sexual love, conjugal love, and parental love; what his attitude toward nature and the dread forces of earthquake and storm, and the mysteries of spirit and the hereafter — we shall find our answer in the songs and prayers and recitations of the *hula*.

¹ Introduction to an unpublished manuscript, *The Unwritten Literature of Hawaii*. Presented at the meeting of the American Anthropological Association, San Francisco, August, 1905.

The hula, it is true, has been unfortunate in the mode and manner of its introduction to us moderns. An institution of divine, that is, religious, origin, the hula has in modern times wandered so far and fallen so low that foreign and critical esteem has come to associate it with the riotous and passionate ebullitions of Polynesian kings and the voluptuous posturings of their flesh-pots. We must, however, make a just distinction between the gestures and bodily contortions presented by the men and women, the actors in the hula, and their uttered words. "The voice is Jacob's voice, but the hands are the hands of Esau." In truth the actors in the hula no longer suit the action to the word. The utterance harks back to the golden age; the gestures are trumped up by the passion of the hour, or dictated by the master of the hula, to whom the real meaning of the old bards is oftentimes a sealed casket.

Whatever indelicacy attaches in modern times to the gestures and contortions of the hula dancers, the old-time hula songs were in large measure untainted with grossness. If there ever was a Polynesian Arcadia, and if it were possible for true reports of the doings and sayings of the Polynesians to reach us from that happy land—reports of their joys and sorrows, their love-makings and their jealousies, their family spats and reconciliations, their worship of beauty and of the gods and goddesses who walked in the garden of beauty—we may, I think, say that such a report would be in substantial agreement with the report that is here offered.

If any one finds himself unable to tolerate the nude, he must not enter the galleries of art. If one's virtue will not endure the love-making of Arcadia, let him banish that myth from his imagination and hie to a convent or a nunnery.

For an account of the first hula we may look to the story of Pele. On one occasion that goddess begged her sisters to dance and sing before her; but they all excused themselves, saying they did not know the art. At that moment in came little Hiiaka, the youngest and the favorite. Unknown to her sisters, the little maiden had practised the dance under the tuition of her friend, the beautiful, but ill-fated, Hopoe. When the invitation was banteringly passed on to her, to the surprise of all Hiiaka modestly consented.

The wave-beaten sand-beach was her floor, the open air her hall.
Feet and hands and swaying form kept time to her improvisation :

Look Puna's a-dance in the wind ;
The palm-groves of Kea-au shaken,
Haena and the woman Hopoe dance and sway,
On the beach Nana-huki —
A dance of purest delight —
Down by the sea Nana-huki.

The hula was a religious service, in which poetry, music, pantomime, and the dance lent themselves under the forms of dramatic art to the refreshment of men's minds. Its view of life was idyllic and it gave itself to the celebration of those mythical times when gods and goddesses moved upon the earth as men and women and when men and women were as gods. As to subject-matter, its warp was spun largely from the bowels of the old-time mythology, that became cords through which the race maintained vital connection with its mysterious past. Interwoven with those, forming the woof, were threads of a thousand hues and of many fabrics, representing the imaginations of the poet, the speculations of the philosopher, the aspirations of many a thirsty soul, as well as the ravings and flame-colored pictures of the sensualist, the mutterings and incantations of the kahuna, the mysteries and paraphernalia of Polynesian mythology, the annals of the nation's history — the material, in fact, which in another nation and under different circumstances would have gone to the making of its poetry, its drama, its literature.

The people were superstitiously religious ; one finds their drama saturated with religious feeling, hedged about with tabu, loaded down with prayer and sacrifice. They were poetical ; nature was full of voices for their ears ; their thoughts came to them as images ; nature was to them an allegory ; all this found expression in their dramatic art. They were musical ; their drama must needs be cast in forms to suit their ideas of rhythm, of melody and harmony — poetic harmony. They were, moreover, the children of passion, sensuous, worshipful of whatever lends itself to pleasure. How

then could the dramatic efforts of this primitive people, still in the bonds of animalism, escape the smirch of passion? It is interesting to note that the songs and poetical pieces which have come down to us from the remotest antiquity are generally inspired with a purer sentiment and a loftier purpose than the modern; but it can be said of them all that when they do step into the mud of animalism it is not to tarry and wallow in it; it is rather with an unconscious naivete, as of a child thinking no evil.

The most advanced modern is no doubt better able to hark back to the sweetness and light and music of the primeval world than the veriest wigwam-dweller that ever chipped an arrowhead or twanged a bow. It is not so much what the primitive man can give us as what we can find in him that is worth our while. The light that a Goethe, a Thoreau, or a Kipling can project into Arcadia is only that mirrored in their own nature.

If one mistakes not the temper and mind of this generation, we are living in an age that is not content to let perish one seed of thought, or one single phase of life that can be rescued from the drift of time. We mourn the extinction of the buffalo of the plains and the birds of the islands, thinking—rightly—that life is somewhat less rich and full without them. What of the people of the plains and of the islands of the sea—is their contribution so nothingless that one can affirm that the orbit of man's mind is complete without it?

Comparison is unavoidable between the place held by the dance in ancient Hawaii and that occupied by the dance in our modern society. The ancient Hawaiians did not as a rule personally and informally indulge in the dance for their own amusement as does pleasure-loving society at the present time. Like the Shah of Persia, but for very different reasons, Hawaiians of the old time left it to be done for them by a paid body of trained performers. This was not because the art and practice of the hula was held in disrepute—quite the reverse—but because it was an accomplishment requiring special education and arduous training both in song and dance, and more especially because it was a religious matter and must be guarded against profanation by the observance of tabus and the performance of priestly rites.

This fact, which we find paralleled in every form of common amusement, sport, and entertainment in ancient Hawaii, sheds a strong light on the genius of the Hawaiian. We are wont to think of the old-time Hawaiians as light-hearted children of nature given to spontaneous outbursts of song and dance as the mood seized, quite as the rustics of "merrie England" joined hands and tripped "the light fantastic toe" in the joyous month of May, or shouted the harvest home at a later season. The genius of the Hawaiian was different. With him the dance was an affair of pre-meditation, an organized effort, guarded by the traditions of a somber religion. And this characteristic, with qualifications, will be found to belong to every variety of popular Hawaiian sport and amusement. Exception, of course, must be made of the unorganized sports of childhood. One is almost inclined to generalize and to say that those children of nature, as we are wont to call them, were in this regard less free and spontaneous than the more advanced race to which we are proud to belong. But if the approaches to the temple of Terpsichore with them were more guarded, we may confidently assert that their enjoyment therein was more deep and abandoned.

HONOLULU,
HAWAII.

EXPLORATION OF THE LOWER AMUR VALLEY

By GERARD FOWKE

The researches herein reported were carried on during the working season of 1898, for the American Museum of Natural History of New York. Investigation was confined strictly to the last 350 miles of the Amur river and to the coast from its mouth to Okhotsk sea.¹ Facts stated and opinions advanced are not intended to include a wider range than the immediate vicinity of the shores.

Before the advent of the Russians, from 1855 to 1860, the natives' diet was confined almost exclusively to meat and fish. The Amur is one of the great salmon streams of the world, though at present Japanese and Russian fishermen succeed in catching the greater portion of the run near the mouth of the river. The main dependence for animal food was the flesh of the elk; these came down in summer from the mountains to feed on the abundant vegetation along the river, and hunters lay in wait for them around the margins of swamps. No shell-fish exist in the region examined, or at least none accessible at the time of need, except a sort of periwinkle or water-snail; these are not used as food at the present time, nor is there any evidence that they ever served this purpose. The absence of shell-fish may be accounted for by the fact that the water of the Amur contains only a very small amount of lime in solution (evidenced by it lathering freely with any kind of soap), and the swift current carries to the sea all clayey sediment, such as is ordinarily deposited by large streams, leaving only sand and gravel in its bed and along the shores. One may walk for miles on the beach after a heavy rain without soiling his shoes.

Possibly some items may have been added to the meager dietary through barter with Manchus, but not enough to be of material value. In summer, while vegetation is abundant, the natives consume quantities of various herbs which grow spontaneously, with

¹ A brief abstract was printed in *Science*, April 14, 1899.

an especial predilection toward garlic or wild onions ; but they have never made the slightest attempt at cultivating the soil until quite recently, and at the best they take no interest in raising crops of any sort except on a very small scale, when they have been urged to do so by the advice and example of the white settlers.

Bone, wood, and fiber seem to have been the primitive materials for nearly all tools, implements, and utensils. Flint or any allied substance adapted to the manufacture of arrow or spear heads is not to be found. Stone suitable for other objects is rare ; it occurs only in the form of water-worn pebbles or small boulders which are not at all plentiful, being confined to limited and widely separated areas along the shores. For many kinds of work they may have been used in their natural forms.

Careful investigation failed to reveal any distinct evidence of a prehistoric people differing in their manner of living from those now occupying the region. Every place at all suitable for a village-site, every stretch of shore or exposed bank bordering on a spot that would seem to hold out to persons in any condition of life the slightest inducement for even temporary occupancy, was thoroughly examined, but usually with negative results. No flint implements were discovered, though a few arrow-heads labeled " from the Amur River," and supposed to have come from this region, are to be seen in the museums at Khabarovsk and Vladivostok. These specimens, or at least the stone of which they are made, may well have been brought from another locality. Some chipped as well as some polished celts were found ; these are quite small, and most of them have the beveled edge which indicates use as scrapers or skin-dressers. Fragments of pottery are abundant in numerous places, on almost every beach in fact that offers a good fishing station. Most of them are pronounced, by both natives and Manchus, to be of " Chinese " (Manchu ?) manufacture. The pieces attributed to local handiwork are mostly rough and of coarse material, with slight endeavor at any sort of ornamentation ; usually they are quite poorly made.

No investigations away from the river were attempted ; the primitive wilderness, with its dense growth, is almost impenetrable, and no one has, or has ever had, a permanent home beyond its borders.

Native hunters of fur-bearing animals are accustomed to make their winter camps not more than five or six miles away from home, and go prepared to remain in them for weeks or months at a time. Not even trails are to be found through the forests or along the river banks; aside from the usual difficulties of making a road under such conditions, the innumerable marshes, lakes, sloughs, and bayous are absolutely impassable. The many tributaries and inlets equally prevent extended journeying along the river shores. So all travel must be by water; in boats during four months of summer, on sledges or sleighs drawn by dogs or horses during four months when the river is frozen, while for two months in spring and a like period in fall all traffic is suspended.

The Amur below Khabarovsk embodies the drainage channels of a series of former lakes. Wide bottom lands alternate with gorges and receding rocky shores. The former are the silt deposits in the basins of the extinct sheets of water; the latter mark the barriers by which the ancient lakes were restricted. The rocky portions of the channel have not yet been eroded to a depth which permits the formation of terraces in the flat border-lands; when the river overflows its immediate banks the water nearly everywhere stretches to the high lands on both sides. There are some exceptions to this rule in places where local conditions have modified the general plan and brought about a different arrangement of topographical features. Such exceptional benches are usually limited in extent, especially so as to their width. Even if those instances in which the bed-rock reaches to the river's shores be included, there are not many level tracts on the Amur above the reach of the highest floods; consequently, as the native villages must be located close to the water, most of them are subject to overflow. Occasionally, though not often, there is a bluff or low hill favorably situated for occupancy; but approach to such elevations from the river is generally somewhat difficult and preference is given to more easily accessible stations, despite the certainty of future inconvenience. Apparently, like many higher in the social scale, the Amur people submit philosophically to preventable hardships merely because they regard such matters as part of the natural course of events; their fathers lived so and it is not for them to violate precedent.

The Russians protect themselves with substantial log houses put together in a manner that bids defiance to the violence and cold of wintry gales, but the natives seem averse to the form of energy required in erecting such buildings. They prefer to cling to their own style of building, despite the fact that it involves the expenditure of a considerably greater amount of labor in producing less satisfactory results. Perhaps, however, the native looks at the latter part of the proposition from a different point of view. In summer, when camping, a hut or tent affords all the protection that is deemed necessary. The simplest form is constructed somewhat like an Indian wigwam, with a number of poles tied together at the top and spread apart at the bottom, this framework being covered with bark or skins, or sometimes nowadays with canvas. To accommodate a larger number, posts are set in the ground and provided with cross-poles and rafters, to which bark is fastened with tough twisted vines, the roof being held in place by stones and poles. This structure may be used for several successive summers. The winter, or permanent, dwelling is constructed practically as follows: A suitable site having been selected, there is marked off a space whose size is determined by the number of persons for whom accommodations are to be provided. The earth within this area is cleared out to a depth varying according to circumstances, but usually about two feet. Should the ground be low-lying or difficult to penetrate, the pit may be shallower; but if easily removed, or well underdrained, the depth may be considerably increased. Posts are set around the margin of the excavated area, with poles and twigs lashed to them horizontally and vertically to form a wattle; mud is thickly plastered over this on both sides. The roof is similarly wattled and plastered on top. Earth is then banked up against the wall on the outside, and spread over the roof, in such amount as may be requisite for protection against the elements. Should the earth removed from the house-site be insufficient or unsuitable for this purpose, more is obtained by digging in any convenient spot. Little pits due to this borrowing are to be seen at every village-site, occupied or abandoned.

In one corner, a fire-place is made of stones built up somewhat like a dome or in the shape of an old-fashioned straw bee-hive. An

opening is left at the bottom for supplying fuel; and another at the top, into which a large iron kettle is set. From this stove, or furnace, flues lead around the room next to the wall. Each flue consists of two parallel rows of flat stones, set on edge and covered with similar slabs. If stones of proper form are not easily obtainable, bowlders are substituted; all interstices in the fire-place and flues are closely chinked with mud. There may be three or four of these flues in large houses; and perhaps another furnace in a corner opposite the first. All the flues finally unite in one, which, after passing through the wall, is carried from 15 to 30 feet outside, where it terminates at a chimney. This may be formed of a log hollowed out like a trough, with a board fastened over the open side; or it may be made entirely of boards. It is from 10 to 15 feet high, and has a draft ample for the demands made on it. Over the flues sand and fine gravel are piled, held in place at the front by boards and carefully leveled on top, thus forming a raised platform on which the whole family practically lives when indoors. So long as a fire is kept up, the platform is warm and dry.

More or less repair to the walls and roof is necessary after every storm; with every freeze and thaw also their integrity is impaired. The wattle itself in time yields to age and moisture, and the house becomes untenable. But the inmates do not always await such notice of eviction. A flood beyond the ordinary, causing inconvenience or discomfort; a period of unusual cold; the failure of a hunting or fishing expedition; a bad dream of the "head man"; an omen of impending trouble or misfortune, or even a slighter appeal to their superstitious fancy, will cause the entire population of a village to pack up incontinently and seek another location. The house thus abandoned soon sinks to decay. The earth piled around its base, reinforced by that falling from the walls, stands as an embankment around the depression within. If the roof timbers give way while the earth still remains on them, the cavity will be shallower to that extent; should the roof remain intact until the earth washes off, which, if neglected, it will soon do in the very heavy rains prevalent at certain seasons, the embankment is thereby proportionally elevated. When the house remains in use for a long period, the roof will require several renewals on account of this

denudation; thus the height of the surrounding wall, as compared with the depth of the central portion, may be considerably augmented. Consequently the sites of two houses identical in fabrication may differ greatly in appearance after all the perishable parts have yielded to decay; one may seem to have had its floor much deeper than the floor of the other. Such dissimilarity can have no bearing upon either the actual or the relative age of two abandoned houses, but, at the most, can only suggest that one was probably occupied a greater length of time than the other.

In referring to measurements hereafter, the figures indicating breadth or diameter will represent the horizontal distance between opposite points on the embankment; while depth will mean the vertical distance from the top of the surrounding wall to the bottom of the enclosed pit as both now exist.

The word "house-pits" is the closest interpretation of the native name by which these depressions are known. They are regarded, wherever found, as abodes of "the old people." This term signifies simply people who lived at the locality before the present inhabitants came, and has no reference either to the time of the earlier occupancy or to the identity of the dwellers.

With these preliminary remarks, applicable to the territory occupied at this time by the two native tribes of Golds or Goldi, and Gilyaks, a more detailed account of the expedition may be taken up. The names of villages or other places are phonetically spelled according to the pronunciation given by either Russians or natives.

On the right bank of the Amur, somewhat more than 200 miles below Khabarovsk, is a station of the Russian Imperial Post Service. It has no specific name, being merely a place for changing horses in the winter. The native village of Halba is situated two versts (verst = 3,500 English feet) below it. From the station a smooth, gently-sloping gravel beach extends about six versts down the river, terminating at a narrow stream which is the outlet of a lake or lagoon covering probably fifty acres. The beach borders a strip of level bottom land; between this and the mountains at the back is a wide swampy tract. Elk and game of other varieties resort to the lake, while wild fowl in season throng the marsh. The

beach, which affords a most excellent place for landing canoes and hauling seines, was deemed a good spot for beginning operations.

A verst above Halba are a dozen or more house-pits, from 20 to 40 feet in diameter, and from 3 to 6 feet deep. The sides have attained their final slope. Owing to the profuse growth of brush, weeds, and vines, especially blackberry and wild rose bushes, the exact number of pits could not be ascertained, and no digging was attempted.

Two versts below Halba is the native village of Belgo; here are fifteen or twenty pits similar to those just mentioned. Here also obstacles such as before encountered prevented accurate count. Across one pit, measuring 25 feet from side to side and 4 feet deep, a trench was carried. In the center, 2 feet below the present bottom, a space 3 by 4 feet with a maximum depth of six inches, was burned to a bright red. No ashes or charcoal lay on or around this fire-bed, but its origin was plain. Below this level was fine, clean, yellow sand; above it, the earth from the sides. On the same level were several pieces of pottery, fragments from large vessels. The unchanged sand was loose and easily dug; that which was burned was compact, and gave forth a gritty sound and sensation as it was penetrated by the tools. A skull, quite solid, was picked up on the surface among the weeds a few feet from this pit; but no place could be found from which it was likely to have come.

About a hundred yards above the outlet of the lake, lying under three feet of earth and at the level of the topmost gravel layer of the beach, was a fire-place of flat stones, exactly similar to the kind now in use among the Goldi. Apparently it was constructed when the bed of gravel and sand on which it rested was the highest portion of the beach, and was since covered by the alluvium; at least there was no indication that the overlying earth had ever been disturbed since it was deposited by the water. The slabs were almost in their proper order; there were some traces of other fires in the earth above them, though no stones were found about the latter.

At several other places along the foot of the bank, within a mile of this fire-place others much like it were unearthed at about the same depth. Two of them were cleared out, but no remains of any

kind were found in or about them. Neither could anything be found on the beach except two fragments of pottery and a rude, unfinished, chipped celt.

At Belgo and Halba the river is fully two miles wide; on an island near the farther side are about 20 house-pits, smaller and shallower than those at the villages. In one, which was cleared out, a flue was found, made of flat stones, just as flues in that region are constructed now. It was covered with five or six inches of earth, probably sedimentary, as the river has flooded the site twice in the last forty years. Portions of two skeletons were found in the river bank where it had caved away. They were just under the sod; the bones looked quite fresh, and the birch box in which they lay was only slightly touched with decay. A skull, possibly from one of these skeletons, was picked up on the beach; and a great many potsherds also were found. A Chinese merchant who inspected the latter material said that most of it was of Chinese (Manchurian?) though some of it was of Goldi manufacture. The oldest man in Belgo does not remember when any one lived on the island. He did not know his age, but his daughter claimed to be more than eighty, and looked it.

At Verchne-Tombovsk, nine versts below Belgo, human remains were exhumed by some workmen in excavating for an ice-house on the point of a terrace where a small stream flows into the Amur. No information could be secured from the men beyond the fact of the bones having been discovered about four feet beneath the surface. At the same time, while a drainage trench was being dug around the ice-house, a fire-place and flue were unearthed near the river bank. They were practically destroyed by the trenching, but enough remained to show that they were of the type now in use. The natives say a village formerly stood here, but that many inhabitants died of smallpox "before the Russians came," and the survivors moved up the river and established the village of Belgo.

Several houses having been erected on this old village-site, permission for further excavations could be obtained only for a small area on the river bank. Here an ash-bed was found at the depth of sixteen inches; it was three and a half feet across, five inches thick at the middle, and thinned to an edge on every side. It lay in a

saucer-shaped hole or fire-pit, the earth under the central portion having burned red to a further depth of three or four inches. Some fragments of pottery and a piece of slate rubbing-stone were found among the ashes. A foot from the edge of the fire-pit and lower than its bottom, or at a total depth of about two feet, was a large polishing or sharpening stone with a wide hollow in each face, and a narrow, deep groove alongside one of them.

Twenty versts below Verchne-Tombovsk, on the opposite side of the river, near Chanka, house-pits occur; high grass and weeds prevented their number being ascertained. There are also two earth mounds about three feet high, through one of which a trench was dug. The first foot excavated was of earth; this rested on a mass of birch-bark scraps among which were some pieces of wood, including parts of a spoon and of a small human effigy. It is customary among the Goldi, when making domestic articles of such material, to throw all the refuse in a heap near the house. The Russians sometimes take advantage of this custom to secure foundations for haystacks, increasing the elevation, if necessary, by piling on earth; such were the origin and use of these mounds.

At Onda, on the right bank of the Amur, is the first beach for several miles. Fragments of old pottery were scattered among the gravel on the shore. At the water's edge near the village were two small severed bushes or branches struck into the gravel, with the leaves still clinging to the twigs, though quite dry. Half-way up the beach were two more such bushes; at the top of the bank, in the edge of the brush, two more. They seemed to be intended to mark a pathway. Beyond the last two, in an open or cleared space of not more than a square yard, the end of a stout stick pushed or driven deep into the ground stood about thirty inches high. Stick and bushes all had little bunches of shavings tied to them. Some yards away, the end of a coffin was projecting from the low bank, the boards being but very slightly decayed. In it was a skeleton with shreds of decayed flesh still clinging to the bones. A modern Chinese or Japanese pipe and a copper vessel of a kind in common use for heating vodka were with the remains.

Nothing worthy of mention was found between here and the mouth of the Garoon, which comes in on the left some miles below.

A large island at the mouth of this stream causes it to discharge through two channels. On the left bank of the lower mouth are three house-pits. They are evidently quite recent, as the walls have suffered very little from erosion and the corner posts are still standing, solid and strong.

Just below middle Tombovsk notched sinkers were found on the beach near the bank; these may have belonged to any age. The Goldi use many such sinkers.

On the left bank, about three versts below Holbuka, at the lower end of a ridge a mile long, with low swampy land back of it, are twelve or fourteen house-pits. These are from 15 to 35 feet across, 2 to 4 feet deep, and 30 to 60 feet higher than the level of the beach—the first house-pits yet seen which are entirely above overflow. Pottery fragments also were found. This ridge may be the remains of an island; but it has every appearance of being due to the combined action of waves and winds.

On the right bank, just above the mouth of the Nyung-Nyu, is a house-pit; there may be others. Oftentimes, in the coarse, rank grass, which is from four to seven feet high on the flat lands, and stands as thick as timothy in a meadow, one discovers depressions only by falling or sliding into them; and there is no certain way of determining when the last one has been found. Immediately below Nyung-Nyu, at a single hut marked on charts as the village of that name, are several house-pits. They stand on a former bank of the Amur, with a gentle slope down to a slight bayou in front; but the site is now shut off from the water by a great sand ridge formed by the waves or wind, or both, since the village was settled. These are apparently the most ancient house-pits found, so far, on the trip; but surface changes are very rapid in the shifting soils and sands of the Amur valley.

On the right bank of the great river, five miles above lower Tombovsk, is a terrace rising thirty feet above overflow. It is level on top, half a mile long, and 500 feet wide at the broadest part. The river now flows 80 yards from its foot; the intervening space is a low meadow, built up by flood action on the former gravel beach. An extensive swamp stretches between the terrace and the mountains in the rear. Scattered about here are 48 house-pits, many of them 40 to 50 feet across and 3 to 5 feet deep.

Nearly half a mile below this terrace, separated from it by a little stream issuing from a swamp, is a small sand ridge, with the front nearly vertical from wave action during high water. It is probably the last remnant of an island, and will soon disappear. Between its base and the water extends a mass of gravel and bowlders, among which are thousands of pebbles of very hard blue slate and other stone suitable for implements; most of these are of such shape and size that but little labor would have been required to convert them into tools or weapons adapted to primitive needs. Many pieces showed marks of work, among them small scrapers or celts of slate, now for the first time observed, and notched sinkers. Fragments of pottery also were found.

On the left bank of the Amur, nearly opposite this place, begins another terrace or ridge, thirty feet high, with a swamp back of it. All such ridges are similar in appearance to those found along lake margins, and are formed in the same manner. The Amur in many places has a width of two miles or more while within its banks, and during floods attains a velocity of eight or ten miles an hour. It is stated by persons familiar with the river at all seasons, that in places where there is a rocky bottom and consequently a greater incline, a rate of fifteen miles an hour is reached in the channel in time of highest spring floods. Such a torrent, when opposed by a strong wind, has a swell like the ocean. The water is then thick with sediment which is whirled into the eddies and piled in calmer places along the shores, forming great bars and tow-heads; when the waters recede and these dry out, the winds carry the sand farther inland and in time large tracts may be covered by it to a considerable depth.

The ridge or dune last mentioned, whose lower point is about four miles above lower Tombovsk, is nearly three-fourths of a mile long, and contains house-pits along its entire length. There are more than a hundred from 30 to 50 feet across and up to 6 feet deep; and many others which may be the sites of small huts or only large "borrow-pits." This village-site has not been inhabited within the memory of any one now living; the natives have a tradition, however, that a large number of their people formerly lived on the spot.

At the lower end of this dune is a swale, separating it from a ridge 50 feet high, and sloping steeply on both sides. It is not composed of sand, like the other, but is a spur projecting from a high hill. In a line on its crest, which is only wide enough to afford them room, are five or six pits, scarcely of sufficient size to mark a hut-site, and at some distance from the river. They may be ancient traps or pit-falls.

On the same side, a mile below, is a lagoon of thirty or forty acres. A dune running out from a low hill of native soil nearly shuts off this lagoon from the river, leaving only a narrow outlet along the upper side. On the higher part of the dune and extending to the adjacent slope of the hill, is a collection of a dozen or more house-pits; they are from 30 to 60 feet above the water. This is known to be the site of a recent Goldi village. A native said he had been among the people at the time it was occupied, and that it was abandoned about twenty years before. In all essential respects it is the same as others examined.

Two miles above lower Tombovsk the Coolgoo river flows into the Amur; on the lower side of the junction are five or six house-pits.

Three versts below lower Tombovsk, on the same side, is a dune or ridge made by the river; it is on a foundation of sand and fine gravel containing slate pebbles. The latter were utilized to some extent for making implements, as unfinished or broken ones were found, along with fragments of pottery. A single house-pit was located behind the dune.

Seven versts below this, on the left, are several house-pits at the mouth of a small stream coming in from the Stone Man mountain. On top of this mountain are three great masses of rock, portions of dykes. They are visible for more than forty miles up or down the river. Tradition has it that in ages past a great Goldi chief went up here with his dog in pursuit of a bear. For some reason all were changed into stone. Viewed from a certain point the "man" has a striking resemblance to a statue in classic costume, while the "bear" looks very much like a sculpture of that animal gazing back over a pile of stones at his pursuer. The "dog" has no likeness to anything in particular. Many persons have

attempted to reach the top of the mountain where the figures are, but no one has ever succeeded.

Nothing was found between here and the mouth of the Sheleko river; on the upper side of this stream, at the site of an abandoned Russian village, are five house-pits. A small celt-scraper was found near by, on the beach.

Five versts farther down the Amur is the recently abandoned native village of Hotzko. Here, on both sides of a little stream, are house-pits, overgrown as in other places.

Four versts lower is another abandoned village-site. The land about it was cultivated for some years by Russian colonists who kept for their town its native name of Ca. Like most government colonies, this one soon perished, through agencies that seem inseparable from pauper, penal, or subsidized communities, and the only inhabitant now is a man who sells wood to the steamboats and cuts hay from the old clearing. There are about 80 house-pits here, besides numerous borrow-pits, so that at one time Ca must have boasted a considerable population. One of these pits, measuring 38 feet square between outside corners of the embankment, was trenched across. The ridge was of a clayey nature, proving it to be the mud plastering of the walls. Remains of a post were found going down into the earth below the wall. Farther within were four rows of smoke-blackened stones, forming three flues. Nothing was found in the central area except a few scattered potsherds; these, being near the surface, may have been gathered up in the earth forming the roof, and fallen in with it. On reaching the opposite side, three rows of stones were found, forming two flues. The distance from outside to outside of these stones was 34 feet, which thus represents the inner measurement of the house. Natives say that "a long time ago" (this means with them any time prior to the Russian occupancy) very many people lived here. A "great sickness" fell upon the community, from which most of them died. The survivors, as soon as they were able, moved away. The disease was probably smallpox; it raged in 1874 and again in 1879, and it is said that a similar but more deadly pestilence occurred many years ago throughout the valley. Search was made for a burial-place, but no signs of one could be discovered. Until recent years

the natives — or the Gilyaks, at least — did not inter the dead, but either burned them or laid them on the ground, scantily covered with old clothing, grass, and brush.

Near the upper end of an island whose head is twelve versts below Loocheeteska, is a single house-pit; a verst farther are seven or eight. On the lower end of the island is the native village of Gassan, recently settled.

There is nothing else until the abandoned village of Ere, three versts below Seleonepar, is reached; here are 18 or 20 house-pits, some of them 40 feet across and 4 feet deep. In two of them the stone-flue arrangement is quite easily traced, so they must be comparatively recent. At this place a grave was opened; the body had been placed in a strong pine box and buried two feet deep. As the interment was of a late date, we did not disturb the remains.

From Seleonepar to the mouth of the Amur, only Gilyak villages are found. Above the Garoon river, all are Goldi; while both tribes intermingle between these points.

From Ere, for a hundred miles or more, on the left side of the Amur is a succession of lagoons, swamps, creeks, bayous, and islands, stretching in some places fully twenty miles inland to the mountains, and all subject to frequent overflow. No one lives among them, and no one ventures into them except a few hunters, fishers, or hay cutters, and these for only a short time. On the right side there are many more bluffs than above Ere, and where good beaches or bottom lands occur there is usually some feature that makes residence unpleasant or inconvenient. Consequently, but few villages are to be found. Sometimes there is not a habitable spot for ten miles at a stretch.

Five miles above Nyata is a sand dune a few feet above overflow. House-pits extend fully a fourth of a mile along its top; some of them are four feet deep. In two or three are remains of posts and poles, indicating possibly more modern huts on the older sites. A few cross-sections show, on account of the caving of the bank; the construction is the same as in the house-pits which were excavated. Some potsherds, and a small pot nearly whole, were found on the shore.

About two and a half miles below Nyata, on a low bluff on the

lower side of a river bearing the same name, are ten house-pits, one of them fully 60 feet across.

Four miles below the mouth of Poolsa river are two pits on a bluff; and two versts below these, above overflow, are eight others.

From here to Sophisk there are only low islands and marshy shores or low bluffs. No spot exists where there is a safe mooring-place for river craft of any sort, or any site where a house could stand. The river divides into scores of channels so intricate and so continuously shifting in direction and depth that even steamboat pilots are often at a loss to know the proper course. The dense growth of willow and birch shuts off every view beyond the nearest shore. In a small boat one soon finds himself as bewildered and completely lost as if in a trackless mountain region, and can do nothing but drift with the current until he finds his bearings again.

Ten versts above Sophisk a headland juts out into the river, causing a violent whirlpool where waves toss a canoe about as in a storm at sea. On a narrow beach of sand behind this point lies a large boulder, probably carried thither by floating ice, as it is composed of material different from any natural formation in the vicinity. One side of this boulder has been dressed into a flat triangular surface, measuring nearly five feet on each edge. Near the apex a human face is formed by deeply incised lines; this is provided with a crown or head-dress. Below this, near the center of the smoothed surface, are two other heads, without covering. One has two parallel lines across the middle of the face. The other has V-shaped incisions extending from each nostril over the cheeks; from the glabella upward; and from the middle of each eye-brow outward. Farther down, across the lower part of the stone, are two rows of what seem to be only vertical lines; but they are probably remains of an inscription partially obliterated by sand scouring, as the stone is frequently under water. A priest long resident in Siberia and Manchuria says the whole drawing is the symbol of the Chinese Water God, or God of the Waters. There is certainly no place on the lower Amur where voyagers in small boats have more need of his good offices.

The maps show a native village where Sophisk stands; but there is now no indication that it ever existed.

From Sophisk to Marinsk only two places are fit for habitation. One is a long, high dune, separating Lake Lada from the river. Natives reported house-pits on this dune, but none could be found. The other locality is at the outlet of Lake Lada, two versts above Marinsk; there is a native village here, but no evidence of earlier occupancy.

Three versts below Marinsk, on an island of several thousand acres mostly subject to overflow, is a ridge or wind dune nearly a hundred feet high in places and covering an area of at least half a square mile. On the river side this is cut away to a bluff as steep as the character of the material (sand and silt) will permit. On the beach at the upper end of this bluff were some pottery fragments.

Passing from this point between low banks, no signs of life are to be observed until at the two native villages of Bulou, standing on little terraces below the outlet of a lake. There are no house-pits.

A mile below Mongol a small stream enters the Amur. On the lower side is a dry terrace, scattered about on which are many house-pits, some of them the largest yet observed. Two are in natural depressions resembling sinkholes but closed at the bottom. The slope of the terrace reaches down to a swale fifty yards wide, beyond which is a gravel ridge of the same breadth piled up by wave action.

Five miles below Kiama is a formation similar to that near Mongol. The natives report house-pits on the terrace and say the "old people" lived there. The stage of the water was such that the place could not be reached either on foot or by boat. There can be no doubt that both these places were abandoned because the formation of the gravel ridges shut the inhabitants off from the river.

At the Goldi village of Pooli, five versts above Bogorobski, on the right bank, are house-pits on a high terrace between two little streams. The present natives, who have lately moved down from the Garoon river, say a Gilyak village formerly stood here.

Scattered along from Bogorobski to a little stream less than half a mile above it, are between twenty and thirty house-pits. Much of the ground is cultivated. Careful search failed to reveal a single object in the vertical bank; but on the beach were pot-

sherds and many broken or unfinished small stone implements. Nearly all the latter are of slate, and are mostly celts or scrapers, though there were found in addition some side-notched sinkers; a sharpening stone; a fragmentary chipped flint, the only piece of this character discovered on the entire trip; and a stone triangular in section with the faces rubbed smooth and flat.

About half a mile below Bogorobski are seven house-pits 25 to 30 feet across, on a level terrace 50 or 60 feet above the water. The bank in front is very steep, this being the first group found which is at all difficult of access.

A mile farther down the river, on a terrace above high water, are five or six house-pits on the left, the first observed on this side below the Stone Man mountain. Natives all agree in the statement that there are not, and never have been, any permanent settlements on the east bank of the Amur from Bogorobski to "a long distance above Sophisk." In fact, until the point just described is reached there is no place on the mainland below Loocheeteska where one could be established.

On the lower side of Poolka river, entering the Amur at Greater Mehilovski, at the native village of the same name, are small house-pits on a terrace above overflow. In one, the posts and ground timbers are only partially decayed, so that it must have been abandoned within a few years.

Five versts below here is an abandoned village called Padt, as nearly as the name can be understood. In 1895, while the river was at flood stage, a terrible storm swept over this region. Many of the houses here were destroyed and others injured beyond repair. Such as remain are used as storage rooms for fishing appliances; but the place will never be occupied again so long as this catastrophe is remembered. Probably very many of the unoccupied villages owe their desertion to a similar cause.

Several house-pits are on a low bluff at the lower end of the village; bushes and small trees grow all around them, but none of any size are found in the depressions, a fact which indicates a rather late occupancy. In the woods near by are three houses or pens, each about the size of a dog kennel; each contained a small, erect, draped figure, like a standing doll, with various small articles lying

around it on the floor. In one was a copper pipe; in all were broken china cups, fragments of cloth, and little utensils of bark and wood.

At the village of Akra, a short distance below Boskrecenskoe, is a river of the same name, about three versts in length, flowing out of a lagoon. There are a few house-pits at the mouth of the lagoon. It is reported that worked stones of some kind exist near the head of Akra river; the natives say Russian explorers spent several days hunting for them some years ago, but found nothing.

Just above Douri are pits on overflow ground, and a little way below that village are others on a high terrace.

At Tiir three large dressed square stone columns, the sides covered with inscriptions, stood on the bluff where the church is built. One is now in Khabarovsk, another in Vladivostok. The third, by accident, fell into the river, which is 120 feet deep at the foot of the bluff, and was never recovered. The inscriptions have been deciphered, and, it is claimed, are to the effect that Genghis Khan extended his conquests to this point. It is reported that inscribed stones are standing about 70 versts up the Amgoon river, which joins the Amur opposite Tiir; some Russians, presumably the same party that went to the head of Akra river, made a search but were unable to find them.

Many house-pits are on the gently-sloping hillside back of the village. A Gilyak, in leveling off a place to build on, found a Chinese brick a foot beneath the surface, and three feet below this a layer, scarcely decayed, of birch bark. This position is near the foot of a hill, however, so the "find" may not be of great age.

The remains of an extensive town are on the slope of the hill next below Tiir. There are several long streets, ditches for draining them, and square house-sites somewhat elevated. Tiles from roofs strew the ground in places. There is also an irregular mound of earth and stones, some of the latter dressed, which is supposed to be the remains of a "church." Much of it has been dug away by relic seekers, but nothing worthy of mention ever rewarded their search. There can be no question that a populous Chinese or Manchu settlement flourished here at some time in the distant past; but nothing has been discovered on which to base a conjecture as to the period of its existence.

At Coo, 24 versts below Tiir, are about 20 house-pits above high water. One is nearly 70 feet across. A very old man said these "yama" looked "just so" when he was a boy, and that they marked the site of old-time Gilyak houses.

At Cheboc the Amur makes its final turn eastward to the sea. It sweeps at an acute angle around a granite bluff fifty feet high, whose top can be reached only by two or three paths eroded in crevices of the rock. On its undulating surface is a considerable Gilyak town, the only one found under such conditions. The excellent beach at the foot of the bluff is probably considered sufficient compensation for the difficulty of reaching the village. Among the present domiciles are several house-pits; but they may mark only older residences of the same people. At one of them the pine-trunk chimney is still standing. Some of the modern houses are in various stages of decay; in a short time, when all the woodwork shall have disappeared and the site become overgrown with bushes, they will have the same appearance as these seemingly ancient dwellings.

At this town thirteen bears were confined in pens, awaiting their turn to be sacrificed. There is a vast amount of ceremony connected with this religious rite, but the bears are eaten at the end.

From here to Nikolaevsk the entire country is unsuited for a life like that to which the natives incline. There are few spots where good landing places are to be had, and the ground is either rocky or swampy, so that excavation for house sites is not feasible. The few houses existing are in such situations that, if abandoned, not a trace of them could be found in another generation; they are intended mostly for temporary use. If there was a settlement in the vicinity of Nikolaevsk, all vestiges of it are now effaced.

At the village of Chabac, on the left bank, 35 versts below Nikolaevsk, on a gentle incline back of a bluff 40 feet high, are several house-pits. The area on which they are found contains only small scattering bushes, while all around are trees of moderate size. These house-pits are therefore probably recent.

About two miles below Chabac there is a gradual ascent from a small brook; it is broken in three or four places by small terraces, only a square rod or two at any point being level. On this slope

are 10 or 12 house-pits in a pine forest. A native said a Russian dug here in 1895 and found "some pots" — potsherds, probably. The same report is made in regard to the pits beyond Cape Puah, mentioned later.

On the right bank of the Amur there are no remains between Nikolaevsk and the native village of Goolyaka. On a little bluff at the lower end of this village several large houses are falling into ruins. Fifty years from now, only brush-covered depressions will be left to suggest their former existence.

Immediately below Goolyaka is a large bight into the head of which flows a small brook. On the upper side of this are two groups of house-pits. One, consisting of 11 depressions, extends about 250 yards along a bank subject to frequent overflow. Some flues are still to be seen among them, though no timbers now remain. The other group is back of this, on a terrace about 20 feet higher; there are at least 25 of the pits, which seem of greater age than those just mentioned. It is probable the ground on which the first group occurs was a beach at the time the upper group was occupied; being covered with silt at high water, it no longer afforded a convenient landing-place, and was utilized for residence purposes, with the abandonment of the older site.

On the lower side of the brook are six house-pits; these are in the forest, with pine trees fully two feet in diameter growing over them.

Along the lower side of Cape Vahs, which forms the eastern boundary of this bight, are 10 house-pits, apparently of recent origin. The earth on the inner side of the embankment has not yet attained its final slope.

Several miles farther down the Amur, nearly opposite the village of Nahleo, is a similar bight receiving a creek. On the upper side of this creek, in dense forest, are at least a dozen house-pits. Pines more than two feet in diameter are growing among them, the largest one observed standing on an embankment. Moss covers the ground to a depth of several inches. The pits extend fully a hundred yards back from the river bank. A short distance west of these, beyond a little ravine, are three house-pits. In one, the timbers are only partially decayed and the pine-trunk chimney is still standing.

There is nothing more to be found above the mouth of the river.

Outside of this, the coast along the Channel of Tartary is a succession of cliffs, with long capes or points of rock projecting at intervals. Occasionally, between these, are areas of beach or level lands. Nearly all of the latter, however, are inundated at the highest tides, and waves beat over them with great force. The bays are shallow and many of them are strewn with huge rocks carried in by the floating ice, so that only at high tide is it possible for even a canoe to venture on them with safety.

South of the river habitable spots cease within ten or twelve miles; there are some small fishing villages on this side, but they have scant room. No house-pits exist.

North of the river there are several good camping-places where the native or the Japanese fishermen spend the fishing season; but they leave before cold weather sets in. The largest is on the north side of Cape Puah, the last headland south of the promontory between Okhotsk sea and the Channel. Here is the finest beach on the coast, and as it is somewhat sheltered from the waves, permanent houses have been erected by some Gilyak families who spend the summer in them. In autumn they move across the peninsula to another cluster of houses, at some distance from the open water but on a narrow passage which cuts off a large marshy island, where they remain until the tides and storms of spring have spent their force.

Seven versts north of Cape Puah are eight or ten house-pits on a gravel ridge. The sea is cutting away the bank and has partially destroyed two of them. In two the timbers in part remain; in two others the flues are still to be seen. In all respects these houses were evidently like those now in use.

A verst farther are three house-pits, close to the beach, in a pine forest. The trees are small, apparently of less than a century's growth. A hundred yards back of them, on somewhat higher ground and in larger timber, are three other pits. One of the latter, not more than 30 feet across, is fully 6 feet deep. Evidently the ground in front, on which the young pines are growing, has been built up since the pits behind were in use, a condition similar to that below Goolyaka.

A mile north of the last mentioned remains are four house-pits from 20 to 25 feet in diameter and 3 to 4 feet deep, which hold their square shape better than any observed elsewhere. They are covered with a heavy growth of moss and peat, which has accumulated to a thickness of from two to three feet on the gravel bank in front of them.

Still north of here, in the Channel and in the Okhotsk sea, are islands on which are Gilyak villages, permanently occupied. Several attempts were made to reach them, but all failed on account of the rough weather; and as the season for the autumn typhoon was now at hand, work had to be closed.

Conclusions

On the whole, there seems no reason for believing that a manner of living and a degree of culture materially different from those now prevailing in the region, have existed in the lower Amur valley since prehistoric times. Other, earlier, people there may have been, but they have left no traces. So far as ancient remains are concerned, an investigator finds nothing on which to establish a working theory as to migrations in any direction. All existing conditions, as they are disclosed by minute examination, are explicable by reference to known habits of the present inhabitants or to the Manchu whose possession of the region has lately terminated. With no mounds, no cairns, no shell-heaps, no burial-grounds, no evidence of agriculture, scarcely any stone implements or pottery, and with such specimens as exist in no wise distinctive—the archeologist stands helpless. The problems of migrations and of ethnic relations must be reached in some other way, if they are to be reached at all.

SAINT LOUIS, MO.

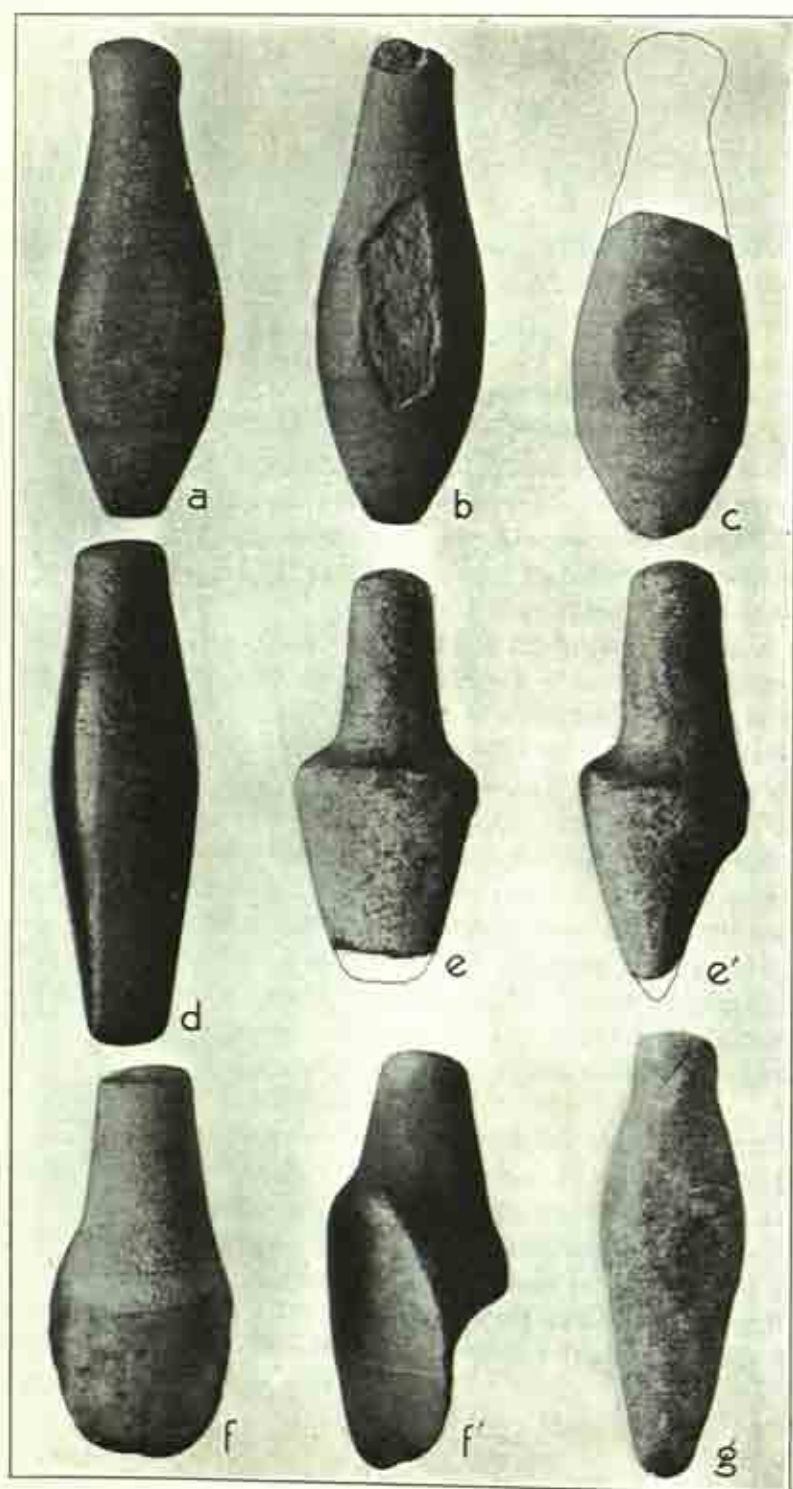
NOTEWORTHY ARCHEOLOGICAL SPECIMENS FROM LOWER COLUMBIA VALLEY

By HARLAN I. SMITH

In the summer of 1903 I examined the archeological collection of the Oregon Historical Society, in its museum in the City Hall at Portland. The collection contained unique sculptures as well as excellent types of rare objects supplementary to the material already forming a part of the collections in the American Museum of Natural History, as well as to the specimens included in the author's gatherings of that season in the field, and to those he had seen in the small collections of the region, and in the large museums of the East, such as those at Harvard, Yale, the University of Pennsylvania, and the National Museum at Washington. A loan of the original specimens for study in the Museum being greatly preferable to notes and sketches made on the spot, the Society, through its assistant secretary, Mr George H. Himes, courteously granted permission for their shipment to New York for study, photographing and casting. The Society also liberally granted the writer permission to take duplicate photographs and casts to supply the needs of other students and institutions, and otherwise to use them as might be deemed desirable in furthering the cause of ethnology. Prints from the negatives and casts from the molds of the specimens may now be obtained by students or institutions conducting researches on the North Pacific coast.

The sculptures, some of which are unique, are characteristic of the region of the lower Willamette. While not attempting to explain fully what these sculptures represent, they may be regarded as of great value in showing the character of the ancient art of that section.

Four specimens (pl. xxiii, *a-d*), which may be designated hand-hammer-adzes, have celtlike edges, but otherwise resemble cylindrical pestles with rather small knob-shaped tops. On each side may be noticed a facet or shallow pit.



STONE IMPLEMENTS FROM THE LOWER COLUMBIA VALLEY

a, b, c, d, Hand-hammer adzes. *e-f*, Hand-adzes (*e-e'*, convex side and edge; *f-f'*, concave side and edge). *g*, Hand-hammer adz. (About $\frac{1}{4}$).

The first hand-hammer-adze (*a*) resembles a plummet or cylindrical pestle, but it is not as thick as it is wide. On each side is a facet, apparently formed by using the object as a hammer for some soft-headed tool, such as a canoe-maker's wedge of wood or antler. The specimen has a knob-shaped top, a celtlike end with a rather straight edge, and is $8\frac{5}{8}$ inches (211 mm.) long. The bit is squarish and seems to have been reworked back from the edge for about one-fifth of the entire length. Where this reworked surface terminates abruptly there is a rise to the older surface which in certain lights appears to form a ridge, in others a groove. There are similar but less distinct signs that the surface of the bit had been once or twice previously reworked still farther back, nearly to the edges of the facets. The present specimen is made of a heavy bluish-gray stone resembling diorite. The surface is smooth, especially on the ground bevels that form the celtlike edge and on the facets. This specimen was found by Mrs A. Dwier of Mt Tabor, and in November, 1900, was presented to the museum of the Oregon Historical Society by the Oregon Alpine Club, of which she was a member. (Cat. no. 99, List no. 29; Am. Mus. Nat. Hist., Cast cat. no. 16/9855, Neg. no. 12.)

The second hand-hammer-adze (*b*) closely resembles the first, except that the facet and surrounding surface on one side have been broken out, apparently by the use of the specimen as a pounding instrument. The knob-shaped top likewise is broken, as if pounded in an effort to use the whole object as a chisel or wedge as well as for an adze and a hammer; it shows only one reworked surface, which extends back nearly to the edge of the remaining (hardly noticeable) facet. The second specimen is $8\frac{1}{2}$ inches (216 mm.) long, and is composed of rather lighter and warmer-colored stone than the first. The marks left in pecking it into shape have not been entirely effaced by polishing except on the rubbed bevels which form the celtlike edge. The implement just described was found by Mrs A. Dwier of Mt Tabor, representing the Oregon Alpine Club, and in November, 1900, it was loaned to the museum of the Oregon Historical Society. (Cat. no. 139, List no. 27; Am. Mus. Nat. Hist., Cast cat. no. 16/9853, Neg. no. 12.)

The third hand-hammer-adze (*c*) also very closely resembles the

first, except that the upper third is broken off and missing. The cutting edge is somewhat curved and is fractured twice on each side; the bit is oval in section and its sides, which bevel suddenly from the shaft, bulge so slightly that they seem concave and apparently are somewhat reworked; and the pits on both sides are pronounced and very smooth. The specimen, which is covered with yellow clay, was found by the Oregon Alpine Club, and in November, 1900, was deposited in the museum of the Oregon Historical Society. (Cat. no. 140, List no. 26; Am. Mus. Nat. Hist., Neg. no. 12. No cast.)

The fourth hand-hammer-adze (*d*) differs from the first three in that it has no top knob, facets, or reworked surface. The cutting edge is curved, convex on one side and less so on the other, giving the implement a form similar to that of some of the celts of the Mississippi valley. The surface is polished very smooth but still shows some of the marks of pecking by means of which the object was fashioned. The specimen is $8\frac{1}{4}$ inches (226 mm.) long and of a yellowish brown color. It was found in Washington county, Oregon, and was presented in November, 1900, to the museum of the Oregon Historical Society, by Mr A. H. Garrison of Hillsboro. (Cat. no. 29 (10029), List no. 28; Am. Mus. Nat. Hist., Cast cat. no. 16/9854, Neg. no. 12.)

There is a similar hand-hammer-adze in the collection of Mr D. W. Owen, of Kennewick, Washington, which he says is from Umatilla, Oregon. This specimen, so far as is known at present, indicates the eastern limit of distribution of this form.

The first specimen of this kind that came to my notice is in the James Terry collection in the American Museum of Natural History. It is catalogued under no. T-22774 as a "chisel stone, plummet shaped, Columbia City, Columbia river, Oregon . . . collected by Dr C. G. Capler on October 4, 1882." In general it (*g*) resembles the first hand-hammer-adze described in this paper, but the object as a whole is of a slightly different shape, the neck being short, the lateral bulge of the body high up near the neck, and the bit long and slender; one facet merges into the flat surface of the side, while the other is rough, apparently having been made by pecking. The entire surface from the top to the side is curved

continuously, the neck being formed by grooving the side edges and carrying the groove around nearly to the middle of the sides, but leaving a small surface standing out like a ridge connecting the top with the side. The bit is oval in cross-section and the celtlike edge is convex. On each face of the bit are four grooves, two on each side. They extend from points between the side and the edge, near the middle of the object, to the bevel for the blade. The grooves on the left part of each side extend farther to the right at the blade, causing the object to suggest a spiral or screw. The specimen is $8\frac{3}{4}$ inches (213 mm.) long, made of heavy stone of a light bluish-gray color; the surface is smooth in some places but shows marks of pecking in others.

Mr E. D. Zimmerman, of Philadelphia, informs me that in his private collection at Monterey, Pa., are six or seven hand-hammer-adzes. Judging from a photograph of a portion of the collection, these are of the type here described; one of them has a hat-shaped top; two at least are of the long-bitted variety.

In a photograph of the H. C. Stevens collection, recently offered for sale, may be seen at least three hand-hammer-adzes. One of these has a simple knob at the top; another, a hat-shaped top, bulging body, and long bit; while a third specimen, which appears to be of the type above described, has a long bit. The top is grooved around twice (cf. fig. 23 *e*, *Mem. Am. Mus. Nat. Hist.*, iv) and on the side of the body shown in the photograph are two grooves which meet near the neck and then diverge, passing on each side of the spot where the facet is usually found, toward the edges of the side. No facet shows in the picture. The grooves just described give the object an appearance suggesting the lower side of a fish, the grooves indicating the gill slits.

Rev. Myron Eells probably refers to this type of object in his statement that "still another seems to have been a pestle at the handle end, and a blunt edge at the other."¹ He also doubtless alludes to this type when, referring to chisels and wedges, he states:

"Dr Rafferty has nine whole ones, or parts, about which there is no doubt. They mostly come from Sauvies Island, and are generally of hard

¹ *Smithsonian Report for 1886*, p. 286.

volcanic rock. They vary in weight from 2 pounds 14 ounces to 5 pounds 11 ounces; in length from $6\frac{1}{2}$ to $13\frac{3}{4}$ inches, and width from $2\frac{3}{4}$ to $3\frac{1}{2}$ inches, and in thickness from $2\frac{1}{8}$ to $2\frac{3}{4}$ inches. The edges are sharp, but the stone is thick a short distance from the edge. I know of none from other parts of Oregon.¹¹

The fact that some of the grooves on the Terry specimen looked as if recently made, taken in connection with its peculiar shape, led the writer at first to regard it as a questionable specimen, or at least as a "sport" not at all characteristic of the region. The number of similar specimens from a restricted area which have since come to the author's notice, however, prove that they constitute a type characteristic of the archeology of Willamette valley and vicinity.

The facets suggest that these specimens have been used as hammers. The writer found similar objects only a short distance to the northwest of Portland, from Copalis head southward to Shoalwater bay, Washington, which are of the same type as those known to have been used by canoe-makers as hammers, that were secured in 1898 by Dr Livingston Farrand among the Indians at Quinault. However, all the specimens found from Quinault to Shoalwater bay, so far as the author is aware, have plain ends instead of celtlike ends and may be called hand-hammers. Probably these hand-hammer-adzes were used by canoe-makers as combination hammers and adzes, the blows being delivered in such a way as to form the facets.

Two specimens (pl. XXIII, *e-e'*, *f-f'*), which may be designated hand-adzes, have celtlike ends and tops resembling pestles.

The first hand-adze (*e*, *e'*) resembles in its upper portion a pestle, with a circular body, somewhat larger at the base than at the top, a disk-shaped striking-head, and a convex top. The surface of this portion of the object shows very slight scars or flutings, reminding one of the surface of a whittled stick or of a pared vegetable. The shaft expands suddenly into the disk-shaped striking-head, which in turn coalesces into a celtlike form projecting from the base of the upper portion. The line of demarkation between the upper (cylindrical) and the lower (celtlike) portions of the specimen is obscure except along part of one edge (*e'*). The celtlike

¹¹ *Ibid.*, p. 288.

part is somewhat convex on one side (shown in *e*), concave on the other, especially at its base, but elliptical in cross-section; it tapers gradually from its large base toward what was once the cutting edge, but which is broken off. There are many signs of fluting on the convex face. The whole object is $6\frac{1}{4}$ inches (174 mm.) long. It is hard and heavy and appears to be basalt, although the surface, except where broken, is much weathered and resembles yellowish-gray chalk.

This hand-adze was found in the garden of Mr E. D. Nelson, Portland, Oregon, and was presented by him on February 5, 1903, to the Museum of the Oregon Historical Society. (Cat. no. 382 (380), List no. 35; Am. Mus. Nat. Hist., Cast cat. no. 16/9860, Neg. no. 1 (edge) and 3 (side).)

The second hand-adze (*f*, *f'*) resembles the first, but the top and the convex exterior of the bit present the natural surface of a water-worn pebble, while the remainder of the surface shows marks of pecking, by which process the object was fashioned from the pebble. In some places these marks are partially obliterated by grinding and polishing. There are no flutings on the surface. The disk shape of the striking-head shows plainly for fully half the circumference of the specimen, but the convex side of the celtlike part extends nearly half-way up the shaft of the pestle-like part. It is set, as it were, about half-way its length on the side of the lower half of the pestle-like part. The bit is lenticular in cross-section and oval in outline. The cutting edge is semicircular, sharp and beveled to an edge, chiefly from the concave side. The whole object is $7\frac{1}{4}$ inches (184 mm.) long and is made of heavy grayish or milky blue mottled stone, possibly slate.

This specimen was found on Columbia slough about ten miles below Portland and was deposited in the Museum of the Oregon Historical Society on Nov. 30, 1902. (Cat. no. 383, List no. 36; Am. Mus. of Nat. Hist., Cast cat. no. 16/9861, Neg. no. 1 (edge) and 3 (side).)

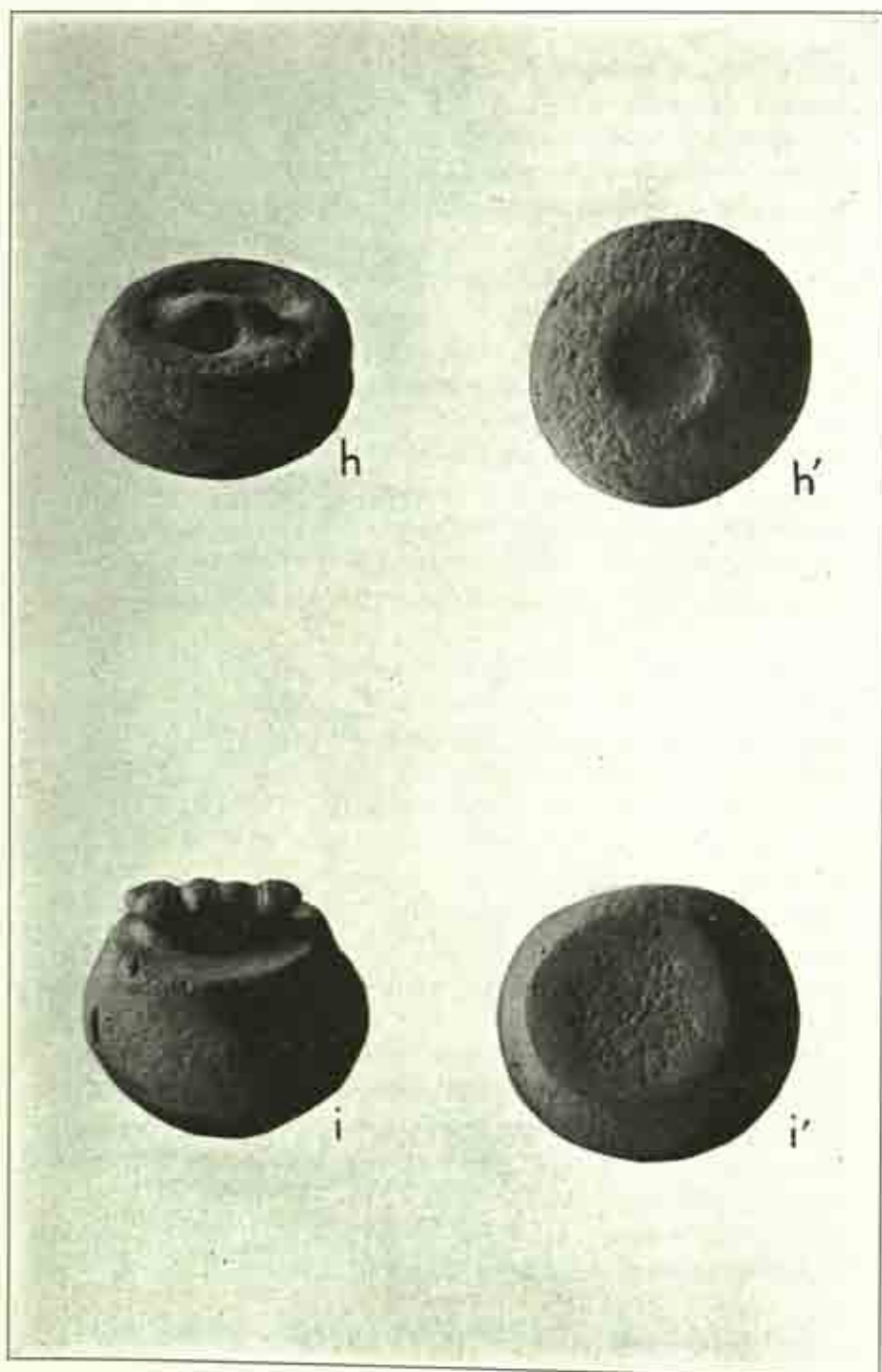
There is a specimen of this type (cat. no. 25) in the collection of Mr Louis O. Janeck, North Yakima, Washington. The natural surface of the pebble from which the implement was made shows on the ridge, or the part which corresponds to the sides of the

striking-head of the pestle-like section. The specimen is $6\frac{1}{2}$ inches (165 mm.) long and made of rock resembling diorite or diabase. (Am. Mus. Nat. Hist., Neg. cat. no. 44452 (2-1), 44503 (6-4).) It is perhaps the most nearly perfect form of this type ever seen by the writer. The upper end corresponds closely in form to a pestle, with a slight indication of a knob at the top, a flaring body, and a short striking-head the periphery of which extends as a ridge nearly, if not quite, around the specimen. The celtlike part is toward one edge, so that one side expands to meet the ridge above mentioned, forming a concavity; the other contracts to meet it, forming a convex sweep from the cutting edge to the beginning of the body of the pestle-like part. The specimen was found near the surface in an old burial ground of the Indians near the mouth of Yakima river on what is known as McNeals island. This specimen marks the present known eastern limit of the occurrence of the form. Mr Zimmerman has informed me that there are five or six specimens of this type in his collection.

The region north of Portland has yielded a pestle,¹ shaped like the upper part of the present specimens, which was used as a hammer, the blow being delivered with the end instead of with the side as in the previous case. From the same area come stone celts hafted in handles made of antler (see fig. 29 *d*, p. 164, Mem. Am. Mus. Nat. Hist., iv). From the region south of Portland are such celts, hafted by being lashed to stone handles (for specimens of such handles see Oreg. Hist. Soc. cat. no. 381, list 34, and the collections of the American Museum of Natural History, the United States National Museum, and the Peabody Museum of Harvard). It seems to the writer, therefore, that this type (the hand-adze) is a combination of the pestle-shaped hammer of the north and the stone celt-handle of the south with the celt of both regions; and that it resulted from a modification and combination of the same ideas that produced these neighboring forms with which it may be compared.

It is also interesting to compare this form with one from the gravel at Oregon bar, California, shown in plates II and VIII of the paper by Professor William H. Holmes on Auriferous Gravel

¹ See *American Anthropologist*, N. S., 1, fig. 10 *c*, p. 364, 1899.



SIDE AND BOTTOM VIEWS OF STONE WEIGHTS
(About $\frac{1}{4}$)

Man in California.¹ However, the present writer believes this form from the gravel is not closely related to the hand-adze herein considered.

Among fugitive specimens in small collections which the author saw in the field during 1903 were a few specimens of these two types (of most of which notes and sketches were made), but there is only one specimen of the hand-hammer-adze and none of the hand-adze in the American Museum of Natural History; consequently the photographs, casts, and notes of these objects are of special value in our researches and for exhibition purposes.

Two other specimens (pl. xxiv, *h, i*) may be called weights. Each of these is a disk-shaped object the top of which is provided with a perforated handle. These specimens are a new puzzle to all who have seen them.

The first weight (*h, h'*) is made of sandstone of a warm gray color and shows peck marks on many portions of the surface, these not having been obliterated by grinding. It is roughly the shape of a truncated cone or disk. The handle in the upper surface is formed by a hole made by drilling a tapering pit from each side. The under side of this handle shows no signs of wear. The top of the disk is somewhat dished for a portion of its circumference, including the pits and a space over the ends of the handle. Around the edge of the object is a wide shallow groove, and in the center of the convex base is a hollow about one-third the diameter of the base. This specimen is in the museum of the Oregon Historical Society, having been loaned by Mr Joseph Howell in 1902. (Cat. no. 267, List no. 9; Am. Mus. Nat. Hist., Cast cat. no. 16/9838, Neg. no. 27 (base) and 28 (side).) There is a specimen identical with this object, so far as can be determined from a photograph, in the Zimmerman collection.

The second weight (*i, i'*) likewise is made of sandstone of warm gray color; it shows peck marks only on the middle of the concave base and on portions of the edges. It is roughly of disk shape and has a slightly concave top with a shallow groove around the periphery just below the top, and two similar but smaller encircling grooves immediately above the base, leaving a bulging place, or

¹ *Smithsonian Report for 1899.*

ridge, around the middle, between the upper and the lower grooves. The margin of the concave base is flat and shows scratches resembling file marks. Similar scratches may be seen on portions of the periphery. On the top is a handle in the form of some animal, possibly a lizard. The mouth is indicated by an incision; the eyes if ever marked are now obliterated; there is an incision across the neck; the shoulders are raised and an incision extends across them in front of which are parallel longitudinal lines; the back is raised; two parallel incisions cross in front of the tail on which are five parallel longitudinal cuts. Under the belly is a hole made by a tapering pit cut from each side, oval or somewhat rectangular in form with rounded corners and bulging sides. There are no signs of wear on the upper part of this perforation. The specimen is in the museum of the Oregon Historical Society, having been loaned by Mrs Joseph Howell in 1902. (Cat. no. 266, List 10; Am. Mus. of Nat. Hist., Cast cat. no. 16/9839, Neg. no. 27 (base), and 28 (side).

These two weights were found in 1902 by Mrs Joseph Howell, Arthur, Oregon, on the shore of Sauvies island, from eight to ten miles below Portland, about eight or ten feet beneath the surface. Every season, beginning generally in April, the Columbia river rises considerably as the result of the melting snow; this causes a rise in the Willamette owing to the back water, and sometimes a large part of Sauvies island is covered. By the middle of July the surplus water begins to run out and in a month or two the river reaches its normal stage. While the water is rising the waves caused by the passage of steamboats continually wash the shores of the island, causing more or less earth to crumble off, thus dislodging or exposing Indian artifacts. These may frequently be found after the swollen stream has subsided. The objects above mentioned were uncovered in this way.

Mr Himes writes that he has seen Indians use grooved stones as sinkers or anchors, the weight being fastened to the bow of the canoe by a rope of hair or grass. He calls these two specimens "anchor stones or sinkers, of unusual shape."

The animal form and the technique of these objects, notably the tapering holes, seem to be representative of Indian art, but the en-

semble is a form new to Indian technology. The specimens remind us of the iron weights used for hitching horses. As there is no evidence to prove them of great age (the annual freshets being as able to deposit soil above Indian remains as to uncover them), the present objects may be Indian copies of the horse hitching-weight which they used for anchoring canoes or fishing apparatus. The specimens seem too fragile in the handle and too well made for use as anchors unless employed only ceremonially. These so-called weights may have been used in a game and they are suggestive at least of curling-stones. If they are copies of a form brought here in the early historic days from the South sea by Kanakas in the employ of the fur traders, or from China or Russia, the author has no proof of the fact. Dr Berthold Laufer informs me, however, that certain ancient Chinese bronze weights are of the form under discussion. After all, these objects may be of purely Indian origin, the specimens here figured being simply a new or unusual form.

The three types of artifacts dealt with in this paper have existed in collections, as previously stated, but with the exception of the above brief references by Rev. Myron Eells, so far as the writer is aware they have remained unnoticed in literature, being undescribed probably because considered exceptional objects rather than a characteristic part of the archeology of the region in which they were found. They are now thought, therefore, to be practically new to science and worthy of publication as types.

The work of the Oregon Historical Society in collecting and preserving material of this kind, together with full records as to the localities where it was found and the conditions surrounding it in situ, is certainly commendable. It would seem possible that the Society might obtain from the Lewis and Clark Exposition a large amount of valuable material for a great museum in Portland, thus causing the Exposition to serve practically, if not ideally, the purpose of furthering anthropological science and the museum idea as an educational factor in the great Northwest.

AMERICAN MUSEUM OF NATURAL HISTORY,
NEW YORK.

HELEN KELLER

By JOHN HITZ

Centuries ago, records tell us of highly educated persons who were either blind or deaf; but of educated blind deaf-mutes, up to the beginning of the nineteenth century no mention appears, and of those recorded, only one, and that one of the twentieth century, has achieved a collegiate degree, namely, Helen Keller. It remained for her indisputably to prove the fallacy of the traditional pedagogical limitations heretofore supposed to prevail in regard to the educational ability of those bereft of what so far have been considered the most essential organs of perception in attaining academic distinction.

Helen Adams Keller was born June 27, 1880, in Tuscumbia, Alabama. At the time of her birth, and during the first eighteen months of her life, she enjoyed the best of health, including full possession of her senses and infantile faculties. Her paternal ancestry embraced men of prominence in the South, whose lineage was of Swiss origin and noted for scholarly achievements, while maternally her ancestors were directly connected with the distinguished Adams and Everett families of New England whose ancestors in England, the MacAdams, claim to be descendants of the Saxon kings. When eighteen months of age (February, 1882) Helen had an acute attack of gastritis, followed by a malignant fever, which resulted in complete loss of hearing and sight. She disclaims having had any recollection on recovery except "confused memories" of what had preceded this illness; in fact, she insists on having remembered nothing, and having had only "vague impressions" of things that transpired, until five years later when she acquired a definite knowledge of words, and her active mind could clearly formulate ideas in the fixed matrix which spoken, written, and printed language provides. Previous to this achievement, during her prolonged period of speechlessness, Helen Keller's mental activity, it



HELEN KELLER

1. At Seven Years. 2. At Thirteen Years. 3. At Twenty-two Years. 4. Miss Keller and Dr Alexander Graham Bell. 5. Miss Sullivan Reading and Spelling at the same time into Miss Keller's hand. 6. In College Vestments.

would seem, sought expression in manifold, and especially in mischievous and combative, ways, such as unruly manifestations against the reprimands of her grandmother. In one well authenticated instance (after having discovered the function of a key) she quietly locked her mother in a pantry, where the latter was compelled to remain for an hour or more. Mrs Keller pounded on the door to no purpose; Helen seated on the floor outside, felt the jar of pounding, and laughed the while with great glee. This performance and its revelation of what seemed a singularly bad spirit convinced the parents that the child must be taught and made to behave, naturally so by some instructor specially qualified to undertake so difficult a task. On the occasion of Helen's father consulting Doctor Chisholm of Baltimore in regard to her case, the latter advised seeing Dr Alexander Graham Bell of Washington, who no doubt would be able to suggest how a suitable instructor might best be obtained. Doctor Bell's advice resulted eventually in securing the services of a graduate of the Perkins Institute for the Blind at South Boston, Miss Anne Mansfield Sullivan, whose eyesight had recently been restored by an operation. After a brief period of special preparation, the following March (1887) she entered upon what promised to be her life work, and developed into one of the most remarkable achievements in the history of pedagogy.

As can well be imagined, the case, owing to the extremely refractory spirit of the child at the time, presented to the teacher almost insurmountable obstacles, for little Helen resorted to the same tactics with Miss Sullivan that she had applied in her intercourse with her parents. But her teacher proved equal to the task. Inflexible determination, at times even physical force, yet always tempered with maternal affection and unwearying patience, coupled with an unshakable faith in the eventual success of her well-nigh inspired efforts, ultimately triumphed. After a voluntary isolation of herself and pupil in a cottage apart from the parental residence, devoted to "seven weeks of the hardest work she had ever done," this pedagogical Columbus was finally rewarded with the discovery of the realm within whose bounds lay untold happiness for her pupil and inexpressible satisfaction for herself. How this was brought about in part is told in Helen's own words, when, five years later, at

the age of thirteen, she tells in a brief autobiography of her being taught the manual or finger alphabet.

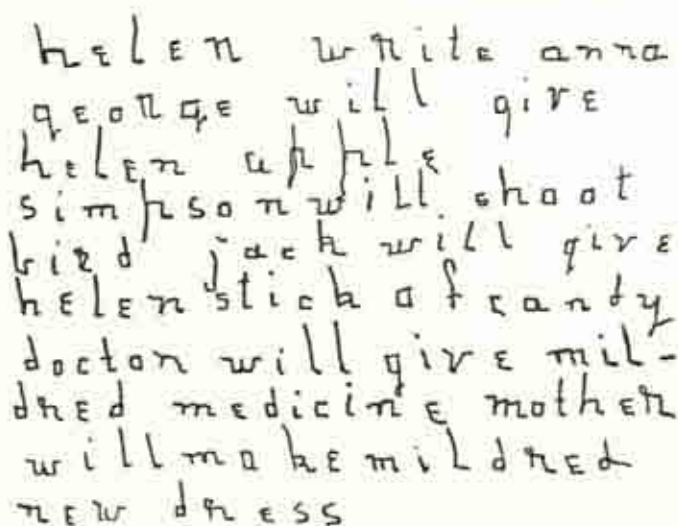
"I had not the least idea that my finger-play was the magical key which was to unlock my mind's prison door, and open wide the windows of my soul. I had learned eighteen or twenty words before that thought flashed into my mind as the sun breaks upon the sleeping world, and in that moment of illumination the secret of language was revealed to me, and I caught a glimpse of the beautiful country I was about to explore.

"Teacher had been trying all the morning to make me understand that the mug and the milk in the mug had different names; but I was very dull, and kept spelling 'milk' for mug, and 'mug' for milk, until teacher must have lost all hope of making me see my mistake. At last she got up, gave me the mug, and led me out of the door to the pump close by. Some one was pumping water, and as the cool fresh stream burst forth, teacher made me put my mug under the spout, and spelled w-a-t-e-r, water. That word startled my soul, and it awoke, full of the spirit of the morning, full of joyous, exultant song. Until that day my mind had been like a darkened chamber, waiting for words to enter and light the lamp, which is thought.

"I learned a great many words that day. I do not remember what they all were; but I do know that 'mother,' 'father,' and 'teacher' were among them. It would have been difficult to find a happier little child than I was that night as I lay in my crib and thought over the joy the day had brought me, and for the first time I longed for a new day to come. The next morning I awoke with joy in my heart. Everything I touched seemed to quiver with life. It was because I saw everything with the new, strange, beautiful sight which had come to me. I was never angry after that, because I understood what my friends said to me, and I was very busy learning many wonderful things. I was never still during the first glad days of my freedom. I was constantly spelling and acting out the words as I spelled them. I would run, jump, skip, and swing, no matter where I happened to be. Everything was budding and blossoming. The honeysuckle hung in long garlands deliciously fragrant, and the roses had never been so beautiful before. Teacher and I lived out of doors from morning until night, and I rejoiced greatly in the forgotten light and sunshine found again."

Within three months Helen had learned to use the stylus employed by the blind in writing, and had written her first letter (June, 1887). Acquisition of the power of reading readily the

embossed print familiar to the blind followed immediately. This was succeeded within three years by her acquiring (1890), through the special instruction of Miss Sarah Fuller, the ability to speak orally, or "talk with her mouth," as she designated speech, an achievement she had insisted on learning, and which afforded her unbounded delight. The art of using an ordinary typewriter had



helen write anna
 george will give
 helen apple
 simpson will shoot
 bird jack will give
 helen stick a candy
 doctor will give mil-
 dred medicine mother
 will make mildred
 new dress

FIG. 14.—Helen Keller's first composition.

meanwhile also been accomplished. Helen thus briefly relates how Miss Fuller taught her to speak:

"She passed my hand lightly over her face, and let me feel the position of her tongue and lips when she made a sound. I was eager to imitate every motion, and in an hour had learned six elements of speech: M. P. A. S. T. I. Miss Fuller gave me eleven lessons in all. I shall never forget the surprise and delight I felt when I uttered my first connected sentence, 'it is warm.' It is true, they were broken and stammering syllables; but they were human speech. My soul came out of bondage and was reaching through those broken symbols of speech to all knowledge and all faith."

In this connection I would refer to some interesting recent observations made by an eminent scholar¹ of Vienna on the subject

¹ Prof. Dr W. Jerusalem in the *Oestreichische Rundschau*, 432-433, Wien, July 6, 1905.

of what another great man of science calls the "Universal Sense," the Sense of Touch:

"In concluding my treatise on Laura Bridgman fifteen years ago, I stated that the education and development of Laura Bridgman, and others who shared her lot, primarily teaches us that the scope of touch and motor sensations can solely serve the world as a gateway to mental conceptions. This assertion in the education of Marie Heurtin attains its final verification. In the case of Laura Bridgman, Helen Keller, and most others, we were unable definitely to ascertain the exact extent to which their infantile receptiveness may have contributed in arousing mental activity. In the case of Marie Heurtin, however, who was born sightless and deaf, there is no questioning the fact that the senses of sight and hearing have given rise to subconscious sensations. All that she has mentally achieved heretofore, and may hereafter achieve, must exclusively be ascribed to the sense of touch and to muscular motor sensation [*Muskel-Empfindungen*]. Marie Heurtin not only enables us conclusively to judge of the extent touch and motor sensations are capable of exercising — but more. We can no longer deny the fact that sense perceptions serve only as *Auslösende Reize* [stimulating solvents], by means of which the central power of our soul life is awakened. The sensual conceptions of thought as presented by Locke, and further elaborated by Lamettrie and Coniellac, and as latterly again asserted by prominent students of natural philosophy, are no longer tenable, confronted by the facts presented in Marie Heurtin's education. Whatever comes by external contact is only the *formulating* power of our Internal. From within we learn to know the world outwardly by adapting the latter to our organization. Hence we learn that it is not so essential whether these perceptions are solved by either sight, aural or touch sensation. Surely a something mysterious must exist within, qualified to give us a conception and understanding of the world.

"The teacher of Marie Heurtin had faith that such a mental or spiritual power existed within her animal-like pupil, and her faith has been confirmed."

All of the absolutely requisite appliances of intercourse with others, and the channels for readily acquiring the knowledge she so eagerly yearned to possess, were now made available to her, and having thus arrived at the portals of Helen Keller's virtual entrance into conscious life, I will leave the faithful and gifted teacher to say

how she proceeded to unfold a mind deprived of what are generally considered the two most essential media of brain perception.

"Language grows out of life, out of its needs and experiences, its joys and sorrows, its dreams and realities. At first my little pupil's mind was all but vacant. Up to the time when I began to teach her, she had no means of registering on its blank pages her childish impressions and observations. She had been living in a world she could not realize. Language and knowledge are like Siamese twins; they are indissolubly connected, they are interdependent. Good work in language presupposes and necessitates a real knowledge of things. As soon as my little pupil grasped the idea that everything had a name, and that by means of the manual alphabet these names could be transmitted from one to another, I proceeded to awaken her further interest in the objects whose names she learned to spell with such evident joy. I never taught language for the *purpose of teaching it*; but invariably *used* language as a medium for the conveyance of thought: thus the learning of language was coincident with the acquisition of knowledge. In order to use language intelligently, one must have something to talk about, and having something to talk about is the result of general culture; no amount of language training will enable our little children to use language with ease and fluency, unless they have something clearly in their minds which they wish to communicate or unless we succeed in awakening in them a desire to know what is in the minds of others. From the very first Helen was eager and enthusiastic in pursuit of knowledge.

"She had one advantage over ordinary children—nothing from without distracted her attention; so that each new thought made upon her mind a *distinct impression*, which was rarely forgotten. At first I did not attempt to confine my pupil to any systematic course of study. I felt that she would accomplish more if allowed to follow her own natural impulses. I always tried to find out what interested her most, and made that the starting point for the new lesson, whether or not it had any bearing on the lesson I had planned to teach, and her eager inquiries often led us far away from the subject with which we began.

"Helen acquired language in an objective way, by *practice and habit*, rather than by study of rules and definitions. Grammar with its puzzling array of classifications, nomenclatures and paradigms, was *wholly discarded* in her education. She learned language by being brought in contact with the living language itself; she was made to deal with it in everyday conversations, and in her books, and to turn it over in a variety of ways

until she had mastered its anatomy. I talked to her almost incessantly in her waking hours, and encouraged her to talk to me. I spelled into her hand a description of what was taking place around us; what I saw, what I was doing, what others were doing, anything, everything. I talked to her with my fingers as I should have talked to her with my mouth had she been a hearing child, and no doubt I talked much more with my fingers, and more constantly than I should have done with my mouth; for had she possessed the use of sight and hearing, she would have been less dependent on me for entertainment and instruction.

"Very early in her education I led her to observe and describe flowers and animals. A flower or an insect often furnished material for a long and interesting language lesson. I did not attempt to make these lessons in zoology and botany formally scientific. I introduced them early in her education for the purpose of cultivating her observation, furnishing themes for thought, and to fill her mind with beautiful pictures and inspiring ideals. Material for language lessons, knowledge of facts, and greater power of expression were ends obtained through these lessons; but were not the most important aims. . . .

"Books have played a very important part in Helen's education. As soon as she had learned the raised letters, I gave her books to read and I doubt very much if I shall be able to make you understand the importance and advantage that books have been to her in acquiring a command of idiomatic English; the advantage has certainly been incalculable. I am confident that the ease and fluency with which she uses language are in large part due to the fact that embossed books were placed in her hands as soon as she had learned the letters. She has, like many hearing persons, a natural aptitude for comprehending and using language as soon as it has been acquired. I think also much of the fluency with which she uses language is due to the fact that nearly every impression she receives *comes through the medium of language*. But after due allowance has been given to Helen's natural aptitude for acquiring language, and to the advantage resulting from her peculiar environment, I think we will still find that the constant companionship of good books has been of supreme importance in her education.

"In speaking of what books have been to her, Helen herself says: 'I read my first story on May-day, and ever since books and I have been loving friends and inseparable companions. They have been my faithful teacher in all that is good and beautiful; their pages have carried me back to ancient times and shown me Egypt, Greece, Rome; they have introduced me to Kings, Heroes, and Gods; and they have revealed to me great thoughts, great deeds.' "

Her teacher continues :

"It is not necessary that a child should understand every word in a book before he can read it with pleasure and profit. Indeed only such explanations should be given as are really essential. *Helen drank in language which she at first could not understand, and it remained in her mind until needed*, when it fitted itself naturally and easily into her conversation and compositions. Thus she drew her vocabulary from the best source, standard literature, and when the occasion came, she was able to use it without effort."

This fully coincides with Dr A. Graham Bell's oft-expressed educational theorem : "*I would have a deaf child read books in order to learn language, instead of learning the language in order to read books*" — applicable equally well, it is claimed, to hearing children.

Miss Sullivan proceeds further :

"Helen has had the best and purest models in language constantly presented to her, and her conversation and her writings are unconscious reproductions of what she has read. Reading, I think, should be kept independent of the regular school exercises. Children should be encouraged to read for the pure delight of it. The attitude of the child towards his books should be that of unconscious receptivity. This means true reading ; reading not only for entertainment, but for intellectual enrichment and enlargement. The great works of the imagination ought to become part of their lives, as they were once of the very substance of the men who wrote them. It is true that the more sensitive and imaginative the mind is that receives the thought-picture and images of literature, the nicer the vitality of feeling, the freshness and eagerness of interest, and the spiritual insight which proclaims the artistic temperament, and naturally she has a more active and intense joy in life simply *as* life, and in nature, books and people, than less gifted mortals. Her mind is so filled with the beautiful thoughts and ideals of the great poets, that nothing seems commonplace to her : for her imagination colors all life with its own rich hues."

Here I would interject some observations relative to imagination in the education of the blind-deaf, ascribed to Doctor Dewey, the eminent psychologist of Chicago University, in which it is claimed that in certain phases of the imaginative faculty they *excel* all

others. So pronounced is this characteristic that the eminent authority mentioned places first in this respect the blind-deaf, the simply blind next, then normal men and women, and the deaf last of all.¹ Doctor Dewey cites the case of Helen Keller simply as typical rather than abnormal, and alludes to the "great danger of laying too much stress upon *sense* perception" in the education of children, adding:

"The wonderful and varied imagery which these minds in silence and darkness have created for themselves stands as a perpetual challenge to those teachers who are encouraging their pupils to revel in the endless panorama of sense perception. It is not necessary to make our pupils blind-deaf, but it may be well sometimes to require them to shut their eyes and ears, if need be, *and think*. I can conceive of no more important school exercise than that which will induce the child to bring into consciousness images of objects that are *not* present to the senses. This done again and again, and the dissociative process begins. Gradually each image becomes disengaged from the thing of sense that brought it into consciousness."

This verifies what the sculptor, Horatio Stone, said to me personally years ago, "A well defined ideal, after all, is solely the true," and we appreciate more fully the depths of thought which prompted the poet Clarence Stedman to close the beautiful poem he dedicated to Helen Keller, with the far-sighted words:

"Not as we see
Earth, sky, insensate forms ourselves,
Thou seest, but vision free
Thy fancy soars and delves,
Albeit no sounds to us relate
The wondrous things
Thy brave imaginings
Within their starry night create.

Pity thy unconfined
Clear spirit, whose enfranchised eyes
Use not their grosser sense?
Ah, no! thy bright intelligence
Hath its own Paradise,

¹ *Arkansas Optic*, March 3d, 1900.

A realm wherein to hear and see
Things hidden from our kind,
Not thou, not thou, 'tis we
Are deaf, are dumb, are blind ! "

At this period, when thirteen years of age, it was that Helen Keller, under the wise guidance of Miss Sullivan aided by special teachers, really entered upon a regular system of academic training. How she regarded this step in her life, the entry she made in her diary at the time, speaks for itself :

DEAR DIARY : " To-day is the thirteenth of October 1893, and I have some pleasant news for you. My studies began to-day, and I am very, very glad. I study arithmetic, Latin, history, geography and literature. I am glad, because I want to learn more and more about everything in this beautiful wonderful world. Every day I find how little I know : for I catch glimpses on all sides of treasures of history, language and science, a beautiful world of knowledge, and I long to see everything, know everything, and learn everything. I do not feel discouraged when I think how much I have to learn, because I know the dear Lord has given me an eternity in which to learn it.

" I used to say I did not like arithmetic very well, but now I have changed my mind ! for I see what a good, useful study it is. It helps me to think clearly and logically and strengthens my mind in many ways. I try to be very, very calm and patient now when the examples seem very hard, but sometimes in spite of my great effort to keep my mind in the right place, it will flutter like a little bird in a cage and try to escape into the pleasant sunshine ; for nice and useful as arithmetic is, it is not as interesting to me as a beautiful poem, or a lovely story.

" Latin is a very beautiful language, and I hope I shall be able to speak and read much of it when I go home next spring. Already I begin to feel better acquainted with the grand old heroes of Rome since I know a little of the language in which they thought and talked so long ago."

But, in the words of her faithful teacher, Miss Sullivan,

" It is Helen's loving and sympathetic heart rather than her bright intellect which endears her to everybody with whom she comes in contact. She impresses me every day as being the happiest child in the world, and so it is a special privilege to be with her. The spirit of love and joyousness seems never to leave her. May it ever be so. It is beautiful

to think of a nature so gentle, pure and loving as hers ; it is pleasant also to think she will ever see only the best side of every human being. While near her the roughest man is all gentleness, all pity ; not for the world would he have her know that he is aught but good and kind to every one. So we see, pathetic as Helen's life must always seem to those who enjoy the blessings of sight and hearing, that it is nevertheless full of brightness, cheer, courage and hope."

In October, 1894, Helen Keller attended a term at a select school for the deaf in New York City, mainly for the purpose of perfecting her articulation, and to continue her study of Latin, French, and German. In 1896 in Cambridge she entered upon her preparatory studies for admission to Radcliffe College (the Harvard Annex for women), which she resolutely determined to achieve if possible. Of her studies and examination there, Mr Arthur Gilman, whose school she attended, speaks as follows :

"She was successful in every subject, and took 'honors' in English and German. I think that I may say that no candidate in Harvard or Radcliffe was graded higher than Helen in English. The result is remarkable, especially when we consider that Helen has been studying on strictly College preparatory lines for *one year* only. She had had long and careful instruction, it is true, and she had always the loving ministrations of Miss Sullivan in addition to the inestimable advantage of a concentration that the rest of us never know. No man or woman has ever in my experience got ready for these examinations in so brief a time. How has it been accomplished ? By a union of patience, determination and affection, with the foundation of an uncommon brain."

The major portion of the time between this and the final examination which resulted (July 4th, 1899) in her being formally admitted to the Freshman class, was devoted to study under a special instructor, Mr Merton S. Keith, of Cambridge, Mass., assisted by Miss Sullivan. Of her labors during this period, Mr Keith says :

"It is idle to inquire whether Miss Keller's achievements are due to innate abilities or qualities, or to expert teaching. In cases like Miss Keller's it seems to me that good teaching and proper environment are even more necessary than in the case of the common student. More pitfalls have been in her way, and careful guidance has often been absolutely necessary.

"With all her innate and acquired powers of mind, she could not have attained her present eminence, had it not been for the moral, or quasi-moral qualities of her soul. Ambition, undaunted courage, defiance of, or glorying over obstacles, obstinate refusal to admit defeat, hope rising from incipient despair, self-respect and self-trust, patience and faith in planning or working, or waiting for the consummation of effort,—these constitute her armor of victory.

"Great as have been her achievements, equal results are, I believe, within the reach of many others. The merely intellectual qualities needed are not rare; it is their combination with moral power that produces the seemingly magic results. Ambition stimulated by obstacles, persistent will and patience, explain many of the wonders of Helen Keller's success."

Of Mr Keith's instruction, Helen says:

"I have enjoyed my work with Mr Keith more than I can express in words. He has done more than any of my teachers except Miss Sullivan (although she seems more like a part of myself than a teacher), to store my mind with rich treasures of knowledge, which shall be a joy to me as long as I live. He made all my studies interesting, even mathematics. He kept my mind alert and eager, and trained to reason clearly, and to seek conclusions calmly and logically instead of jumping wildly into space, as it were, and arriving nowhere. He was always gentle and forbearing no matter how dull I might be, and believe me, my stupidity would often have exhausted the patience of that phenomenally patient man, Job."

In a letter to me, speaking of the examination admitting her to Radcliffe, she says:

"It is an unspeakable relief to know that I have passed the examination with credit. But what I consider my crown of success is the happiness and pleasure that my victory has brought to my dear teacher. Indeed, I feel that the success is her's more than mine; for she is my constant inspiration."

In the college classrooms Miss Keller required the constant presence of Miss Sullivan, who could spell into her hand with ample rapidity all that the instructors read or spoke. Should a professor ask questions, Miss Sullivan repeated audibly whatever Miss Keller would answer, or, when allowed, she handed in after recitations the latter's typewritten answers.

The spirit which animated Miss Keller in her studies is briefly and best told by her in a letter to Professor Copeland of the Harvard faculty:

"I am resolved to be myself, and to write my own thoughts when I have any. When I have written something that seems to be fresh and spontaneous and worthy of your criticisms, I will bring it to you, if I may, and if you think it good, I shall be happy; but if your verdict is unfavorable, I shall *try again, and yet again* until I have succeeded in pleasing you. . . ."

It would be deeply interesting, did time allow, could we follow Miss Keller during her career at college, to observe the unvanquishable attitude she persistently assumed in overcoming the manifold difficulties that confronted her, but I must desist and simply state that I personally attended her graduation from Radcliffe, at Cambridge, on the 28th of June, 1904 (one day after the twenty-fourth anniversary of her birth), and witnessed, amidst continuous applause, the award to her and thirty-seven classmates of the degree of Bachelor of Arts, coupled in her case with the distinction "*cum laude*," and the additional words in Latin inscribed on her diploma: "Not only approved in the whole academic course, but excellent in English letters." The ovation given her at the time reflected credit alike on herself and the vast audience in attendance.

At a recent alumnæ meeting, among other things she modestly stated:

"You will not misunderstand me if I say that much of my life in college has been tedious; slowness was unavoidable in the manual labor of Miss Sullivan's task and mine, . . . In study I have fallen heir to no end of interest and delight. How eagerly I look forward to a new book! As I read, there is a light before me; it is the radiance of poetry. . . . College has breathed new life into my mind, given me new ideas of things, a perception of new truths, and new aspects of the old ones. I grow stronger in my conviction that there is nothing good or right which we cannot accomplish if we have the will to strive. The assured reality and nearness of the end of my schooldays fills me with bright anticipations. The doors of the great world are flung open before me, and a light shines upon me, the light kindled by thought that there is something for me to do beyond the threshold.

"And indeed, for all earnest college graduates there is a great work in the world—work that can be done in sweet, unaggressive ways. There are harsh customs to be made sweet with love; hearts in which a kind, tolerant brotherly love must be awakened; time-hallowed prejudices

that must be overthrown. One evil that must be checked is the ignorance of the *learned* who have never learned the simple, honest language of the heart, which is the most vital of all languages, and is more satisfying than all the Greek and Latin ever written. Thus I have groped my way through college, reaching out on the dark pathway for wisdom, for friendship, and for work. I have found much work, and abundant friendship, and a little wisdom, and I ask for no other blessedness."

Her exceptional achievement is well summarized by Mr John A. Macy, the able editor of her invaluable volume, *The Story of My Life*, dedicated "to ALEXANDER GRAHAM BELL, who has taught the Deaf to speak, and enabled the listening ear to hear speech from the Atlantic to the Rockies."

Mr Macy says :

"The result of her work is to set a new standard for the deaf, and to raise a standard high, if not new, for the whole world of men who work and pray. She has moved the hearts of all nations to an enduring sympathy for the afflicted, and to a new belief in the capacity for the blind and the deaf to be uplifted. Thereby is Helen Keller's service great unto those who see, and those who are blind, to those who hear, and those whose ears hear not.

"It is safe to predict that her work will go further than the goal which is marked by her graduation. This, all who know her well will readily affirm."

As to her future occupation, the public may rest assured it will, in substance, consist of *service to her fellow man*. "Opportunities to serve others," she says herself, "offer themselves constantly ; it bewilders me to think of the countless tasks that may be mine." To prove helpful she realizes the imperative necessity of continuing to improve her mind by engaging in research and keeping well abreast of the best wisdom of the age. Writing will, no doubt, occupy a large portion of her time, and to judge from what has so far emanated from her pen, future productions from the same source will prove interesting, uplifting, and of enduring service.

Let me now quote a few of the many striking pen pictures Miss Keller has already given us, relate several of many incidents, and state her creed.

Speaking of one of her favorite resorts near her home in Ala-

bama, she says in one of her earliest letters: "The mountains are crowding round the springs to look at their own beautiful reflections."

Being asked for a sentiment, she said:

"Knowledge is happiness. . . . Knowledge of the thoughts and deeds that have marked man's progress is to feel the great heart-throbs of humanity through centuries, and if one does not feel in these pulsations a heavenward striving, one must indeed be deaf to the wonderful harmonies of life."

Literature is Miss Keller's "Utopia." She says:

"Here I am not disfranchised. No barrier of the senses shuts me out from the sweet, gracious discourse of my book-friends: they talk to me without embarrassment or awkwardness. The things I have learned, and the things I have been taught, seem of ridiculously little import, compared with *their* large loves and heavenly charities."

Again:

"Be of good cheer. Do not think of today's failures, but of the success that may come tomorrow.

"Remember no effort that we make to attain something beautiful is ever lost. Sometime, somewhere, somehow we shall find that which we seek."

At another time she says:

"It is not always needful for Truth to take a definite shape; enough, if it hovers about us like a spirit wafted through the air like the sound of a bell, grave and kindly."

Speaking of a visit made to Lexington, she wrote:

"As we rode along we could see the forest monuments bend their proud forms to listen to the little children of the woodlands whispering their secrets. The anemone, the wild violets, the hepatica and the funny little curled-up ferns all peeped out at us from beneath their brown leaves."

In another letter after leaving the country to reside in Boston, she thus expresses herself about the public park, or Common:

"Somehow after the great fields and pastures, and lofty pinegroves of the country, the scene here seems shut in and conventional. Even the

trees seem citified and self-conscious. Indeed I doubt if they are on speaking terms with their country cousins! I cannot help feeling sorry for these trees with all their fashionable airs. They are like the people whom they see every day, who prefer the crowded city to the quiet and freedom of the country. They do not even suspect how circumscribed their lives are. They look down pityingly on the country folk who have never had an opportunity to see the great world. O my, if they only realized their limitations, they would flee for their lives to the woods and fields!"

At another time, in speaking of Autumn, she says:

"The forest trees have donned
Their gorgeous Autumn tapestries
. . . A mysterious hand is silently stripping the trees,
And with rustle and whirr the leaves descend,
And like little frightened birds,
Lie trembling on the ground."

One of her letters closes with: "I must go to bed, for Morpheus has touched my eyelids with his golden wand."

In giving Doctor Bell an account of one of her dreams, after describing a curious house, and saying that the people in it wore breastpins on their shoes, bangles on their heads, and rings on their wrists, Doctor Bell queried: "Do you mean you saw them with your eyes?" She replied, "Yes."

How Miss Keller looks upon her limitations, she thus expresses herself to me in a recent letter:

"When I think of the truths which have been brought within my reach, I am strong and full of joy. I am no longer deaf and blind; for with my spirit I see the glory of the all-perfect that lies beyond the physical sight, and hear the triumphant song of love which transcends the tumult of this world. What appears to be my affliction is due to the obscurity, yea, the darkness occasioned by terrestrial things. I cannot help smiling sometimes at the arrogance of those who think they alone possess the earth; they see only shadows and know only in part. They little dream that the soul is the only reality, the life, the power that makes harmony out of discord, completeness out of incompleteness."

Hellen Keller's rules of life and creed may best be summed up as noted in a diary entry made October 18, 1894, at the age of fourteen years, when she says:

"I find that I have four things to learn in my school life, and indeed in life: To think clearly without hurry or confusion, to love everybody sincerely, to act in everything with the highest motives, and to trust in dear God unhesitatingly."

And in her latest work, *Optimism*, she sums up her creed as follows:

"I believe in God, I believe in man, I believe in the power of the spirit. I believe it is a sacred duty to encourage ourselves and others: to hold the tongue from any unhappy word against God's world, because no man has any right to complain of a universe which God made good, and which thousands of men have striven to keep good. I believe that we should so act that we may draw nearer and more near the age when no man shall live at his ease while another suffers."

VOLTA BUREAU,
WASHINGTON, D. C.

SOME NOTES ON ANTHROPOLOGY AND ARCHEOLOGY

By CHARLES PEABODY

The inverse of a genealogical tree is or would be interesting ; a single ancestral pair increases and multiplies, as is said, like a green bay tree, but one may also gather together from the various branches ; our green bay tree may concentrate its laurel crowns from branch and tip upon the trunk. If from the Greek unique science of *φιλοσοφία* have sprung all sciences and all arts, until their name is legion and their titles sometimes limited to the understanding of one man, there is yet a centripetal force urging the massing and arranging of many under one umbrageous whole — Anthropology. It is of this *rapprochement*, partly artificial, partly natural, of certain sciences and arts that a word of explanation may be fitting and seasonable.

Anthropology and archeology are sciences ; they are not arts : to correlate the facts set forth by them, to draw inferences and establish other facts, is an art, yet one may be a capital anthropologist or archeologist and no artist at all ; one may write a Teutonic Ph.D. thesis brim full of facts and be quite unable to make these facts tell their story. It is well not to confuse the subject-matter with the study of it. Archeology *studies* art ; not, therefore, *is* it an art.

Considering for a moment anthropology and archeology as kindred or step-kindred sciences, it will be interesting to make a sort of parallel column record. It may be understood that a certain gulf has existed between the anthropologists and the archeologists, especially the classical archeologists, of America. Some reasons for this unhappy chasm will appear during the discussion.

It is well for gods and men to define terms. Hence Anthropology wishes, cries for definition ; our inverted figure of the green bay tree's trunk sheltering the branches thereof now becomes pertinent. One may define anthropology axiomatically as a whole in terms of its parts. In order to do this properly it is well to hie one to au-

thority and to quote him.¹ "Anthropology is in fact a group of sciences. There is . . . physical anthropology . . . including anthropometry and craniology, and mainly based upon anatomy and physiology [somatology in other words]. There is comparative anthropology, which deals with the zoölogical position of mankind. There is prehistoric archæology, which . . . has to seek the aid of the geologist and the metallurgist. There is psychology, which comprehends the whole operations of [the] mental faculties. There is linguistics, which traces the history of human language. [I need not refer here to special philology, epigraphy, paleography, and phonetics.] There is folk-lore, which investigates man's traditions, customs, and beliefs [of course demonology and mythology]. There are ethnography, which describes the races of mankind and ethnology which differentiates between them, both closely connected with geographical science. There is sociology, which applies the learning accumulated in all the other branches of anthropology to man's relation to his fellows, and requires the coöperation of the statistician and the economist."

To define archeology, one may turn to the title-page of the first number² of the *American Journal of Archæology*; we find this superscription directly followed by the words, "For the study of the Monuments of Antiquity and of the Middle Ages." The contrast is striking and instructive. Men who were accustomed to minute and painstaking effort directed with convergent force toward the elucidation of some one circumscribed field of study, toward the driving of the drill-point of research one millimeter deeper into the rock of the ancient unknown, men who had been thus for years delving and probing under the definite ægis of archeology, bounded by but not identified with philology and history — such men were hardly ready to sink the individuality of themselves and their science in this new, swelling, indiscriminate tide of anthropology.

On the other hand, the young, constructive, synthetic scholar says (again with Brabrook), "the grandeur and comprehensiveness

¹ See address of E. W. Brabrook, Pres. Sec. Anthropology, Rep. Sixty-eighth Meeting Brit. Assoc. Adv. Sci., 1898, p. 999-1010, London, 1899; also in *Smithsonian Report*, 1898, p. 621 ff, 1899.

² Vol. 1., no. 1, Jan., 1885.

of the subject are among its attractions. The old saying, 'I am a man, and therefore I think nothing human to be foreign to me,' expresses the ground upon which the anthropological sciences claim from us a special attention." He feels hampered, harnessed, and harassed in the fetters of one single digging, in the clutches of one single science. To hook out a fact and hang it on the line to dry, and then allow others to coördinate it with its fellows, seems old foggy and stupid when wide realms of research and comparison lie open; in these we may work not only with the spade, but with the plough, the harrow, the reaper, and the winnowing machine.

The cumbersomeness of a definition of anthropology such as that in the nut-shell given above has been felt, and Professor Putnam, in consonance with his own simplicity, prefers "Man and his Works." While easier to handle and less subject to scoffing from those who are not "-ologiolators," it is yet too comprehensive, and the adherents of the older smaller but respectable sciences may retort that we can do away with all other names by inventing one new one — and using three only — making all knowledge and activities, natural and supernatural, come under Theology, Anthropology, and Pragmatology. The name is or is not an asset to anthropologists according to their constructive or dispersive point of view, but it was not calculated to win the affections of those whom it proposed to swallow up. For at the time when this capacious science arose, Archeology laid hold of the skirts of Literature; while distinct from the printed word, it yet was its handmaiden. The illustrating of Greek and Latin texts, the unearthing of the steps up which the Panathenaic Procession took its way, the study of that romantic procession itself in the marbles of the Parthenon; still more, the corroboration and strengthening of biblical positions through biblical and oriental substrata — all this tended toward the recognition of archeology as an art to be wielded by artists, literary, dialectic, or homiletic.

Anthropology might well be a bugaboo to frighten such. At the very beginning arises the sublime Boucher de Perthes;¹ hear him bring constructive reasoning and sound science into his arche-

¹ Cf. A. Thieullen, *Hommage à Boucher de Perthes*, Paris, 1904, pp. 21 ff.

ology: "La première chose à faire, avant la discussion théorique, écrivait-il, c'est d'en venir à une vérification matérielle. Malheureusement, c'est ce qu'on ne fait presque jamais, et l'on préfère écrire pendant huit jours pour démontrer qu'une chose ne peut pas être, que d'employer une heure à se convaincre qu'elle est. . . . Les hommes pratiques . . . en avaient peur, ils craignaient de se rendre complices de se qu'ils appelaient une hérésie."

Then we have that most upsetting of beasts, the *Pithecanthropus erectus* — evolution and its train. Again hark the sound of criminal anthropology; listen to Topinard's invitation to the columns of the *Revue d'Anthropologie*:¹ "Nous accueillerons avec plaisir dans les colonnes de cette Revue les communications . . . ayant trait, non à la science toute entière de la criminalité . . . mais à la partie . . . qui traite des types de criminels, si types il y a . . . ; surtout lorsque seront mises en usages les méthodes descriptives et anthropométriques précises . . . les méthodes rigoureuses d'analyse et de synthèse que cette Revue préconise." This suggests association with the Bertillon system of measurements, whereby one may be literally hung up by the thumb; handwriting experts and all their successes and failures. Under the same broad double or rather hierarchical wings may be grouped the following unified subjects: A fiercely scientific article on the inoffensive pretzel;² such a title as "Das Fehlergesetz und seine Verallgemeinerungen durch Fechner und Pearson in ihrer Tragweite für Anthropologie";³ "Craniologie pathologique de monstre exencéphalien";⁴ "Climat de l'époque quaternaire";⁵ "A Mazahua catechism in Testera-Amerind hieroglyphics."⁶

To offset all this, the anthropologists, accustomed to gamboling lamb-like among pastures with no wire fences, shy at the narrow critical work of the old school of archeologists. The ditty the American students used to sing about Dörpfeld, the greatest of

¹ Cf. *Revue d'Anthropologie*, 1887, p. 690.

² Cf. M. Höfler, Bretzelgebäck, *Archiv f. Anthropologie*, n. f., III (xxx1), 2, pp. 94 ff.

³ Cf. Ranke and Greiner, *Archiv f. Anthropologie*, n. f., II (xxx), 1904, pp. 295 ff.

⁴ M. Giraudeau, *Bull. Société d'Anthropologie de Paris*, 2^e ser., 7, 1872, p. 648.

⁵ Cf. G. de Mortillet, *ibid.*, 1874, p. 391.

⁶ Cf. N. León, *American Anthropologist*, n. s., II, p. 722 ff., 1900.

classical archeologists, illustrates this. The tune of Jonah and the whale fitted well the line, "Dörpfeld and the Riegellöcher." This sobriquet came from the anxious care with which Dörpfeld bases his reconstructions of both archeology and monuments on bolt-holes, foot-marks, and other minutest details. So too the exhaustion of all the methods, the invocation of the whole "barbara celarent" quatrain to determine the exact polygonal requirements of the Greek chlamys, seem to some to resemble the travail preceding the birth of a mouse. They may say with some reason, "Why such *Sturm und Drang* to secure metriculous accuracy when you can't even spell your own name?" We find "archaiology" (Grieb's English-German Dictionary), "archæology," and "archeology"; we find the diphthong *æ* and the two letters separate, and vigorous defenders of idiosyncratic spellings.

The anthropologists perhaps may look upon the cut-and-dried methods and dry-as-dust results with some contempt and deplore the extent to which German pedagogism may go. They point with some humor to the little torso in the Acropolis museum to which a head was added after careful study of the appropriate measurements of each, but which later was rudely decapitated and provided with a second head; this proved its appropriateness by quite upsetting the previous measurements.

The scope then, the methods, and the results, were such that at the beginning, in this country at any rate, Archeology could say of Anthropology that it was a sort of composite photograph, an impressionistic congeries of everything and everybody, loose and scattered application. Anthropology could say of Archeology that it was shackled to tradition, literature, and Teutonism; that it piled up solid grains of sand with little care as to the form or constancy which the heap assumed. The gulf thus created had yet features that caused it to yawn further. There is a certain jealousy between Art and Science. Here we shift our ground and the distrust of Anthropology and Archeology, one for the other, is quite the inverse of what we have just heard.

Classical archeology is a science dealing largely with the fine arts; no one should attempt Greek criticism save him who understands the Greeks, and the Greeks were artists. Outside of epig-

raphy and topography, classical archeologists concern themselves mostly with architecture and sculpture. The man who scans the Riegellöcher, no matter what else he forgets, ought never to forget that every discovery is a stone in a structure of which beauty is the inspiration—beauty, expressed as well as the artist inspired by beauty could express it. Every thesis written on a pair of broken stones should point by synecdoche to a whole of beautiful completion, a sum total of line, form, and proportion Hellenic in magnificence, or should point by metonymy to a certain stage in the progress of the expression of the beautiful among the Greeks. The pride of the broader minded archeologist, especially now-a-days, is that in sculpture, painting, numismatics, gems, basilicas, cathedrals, what you please, the terminus *ad quem* and *a quo* is beauty and the expression of the ideas of beauty.

Enters Anthropology, claiming authority over all human activities, threatening to absorb the beautiful in comparative statements of ethnological religions and conceptions, to drag the Hermes of Praxiteles into the net of dolichocephaly and the Aphrodite of Melos into an anti-corset hygienic diatribe—what wonder archeology balks! Even the pure archeology of the new world is slurred as ugly and grotesque; the canon of Polycleitus would flee to his Argive mountains at sight of a stela from Quiriguá, and the grapes that Zeuxis painted turn to sour wine at sight of a Southwestern sand picture.

Between the upper and nether millstones of classical archeology and ethnology, pure archeology in this country has but a limited region of activity. So much is unknown, enigmatic—"problematical", as Professor Holmes puts it—that ethnology rather lets it slip, and the majority of scholars flock to the living tribes, avoiding a science whose end seems to be a description of itself and its definitions to be in terms of the defined. Not content with the chasm thus separating the sciences, the personal equation takes a hand. There is the eternal revolt of the young against the old, the Ibsens, the D'Indys, the Rodins, versus Shakespeare, Beethoven, and—shall we say—Jean Goujon? Nothing so fascinatingly compelling to conservatism as Hellenic study; nothing more repelling to the explorer than the everlasting harking back to the

Greeks; the very name Classics invokes a gesture of disdain. "Out upon them!" "Away with them!" is hurled from high pedagogic seats, and Greek and Latin are invited to talk modern or give place to the twentieth century—a century smacking more of the twenty-first than of the nineteenth.

The power of advance creates a language—Volapük—Esperanto—this latter a utilitarian exemplification of the survival of the fittest—loves experiment and cares not for failure; all failures are but experiments and successes by exclusion. The universal language does not, like Islam, slay all the unconverted, so the intervening years must needs be given a linguistic stepping stone, hence the anthropological terms which follow: Mentation, pentalogic, seriated (p. p.) nephelonomy, geonomy, chemology, andrology, demology, and the sciences (not altogether new) that deal with the pleasures, welfare, morality, expression, and opinion concomitant in every human act, namely: esthetology, technology, sociology, philology, and sophiology. Besides this nomenclature, for which we may hold as responsible or congratulate as having put into being the late J. W. Powell, we have less well-established names.

"Amerind" and "Amerindian" made a brave fight and are not quite dead yet; "nomenology," suggested by Hill-Tout, and "bicaves," suggested by Moorehead, have their accolade to win, while "artifacts" (or "artefacts") bids fair to live because of a crying need for it. But all these are horrors to the conservative. The modern Schmidt on Hesychius feels stunned by such words and spellings, and shouts "*procul profani*"; wrapping himself in a bomb-proof of ancient philology warranted to blunt the fiercest propaganda.

The older archeology and the newer anthropology, then, from scope, methods, material, purposes, ideals, age, and experience, show little likelihood of developing a cohesion that will cause them to dwell together as sisters, if not in unity, at least in amity. Yet both are here to stay, both are domiciled at Harvard, both point to a museum—Fogg or Peabody, with pride in the interior and tirade against the exterior.

Classical and American archeology after all deal, both, with works of art; discuss, both of them, the progress of artistic en-

deavor among more or less primitive peoples; and both sciences try to run the probe as far back as may be. While Palestine, Assyria, Egypt, Greece, and Rome on the one hand were working ever backward, while the United States on the other was beginning to present its problems of Calaveras county, of Little Falls and of Trenton, other countries too were digging. England and France in caves and river-drift, Germany and Austria in Hallstatt and elsewhere, Denmark in peat-bogs and kitchen-middens, Switzerland and Italy in lake and bog dwellings, were stirring up problems and specimens, presenting these to museums and those to curators, and waiting for Archeology as a whole to take all together, classify, arrange, and deduce. Whether or no, willy or nilly, Archeology then had to answer, and letting go the leading-strings of History, stood on her own feet and boldly embraced the prehistoric. It is the "prehistoric" that names the keystone which will hold the arch that is going to bridge over the gap between old and new, East and West. When Schliemann found his nine superimposed cities and Dörpfeld relegated the majority of these to a time anterior to Agamemnon and Achilles, the touchstone of archeological community of interest was found. There were two stones or stone implements in juxtaposition in Egypt. Both man has wrought. One can be historically given an age of 5,000 years, and shows practically no weathering; the other shows complete weathering. The comparison attests in a word the dignity of prehistoric archeology. Leaving History, then, Archeology joins schools and countries by speaking in other terms; dates have less meaning than sequences, and Archeology dares put on the same plane of comparison the stone age of Greece, which may have ended at the second millennium, B. C., and the stone age of Massachusetts, which lasted till the Pilgrim Fathers came. The bronzes of the Mycenaean epoch may fearlessly be placed alongside those of Hallstatt, and series of vases may be made and compared whether from northern Mississippi, Etruria, or Crete.

The dependence of history on archeology instead of archeology on history may well be illustrated. All history must have a substratum of some sort to build on; traditional it may be, but better it is that it be composed of facts. To Archeology — yes, and to

Anthropology — History turns for her starting points. It will not be amiss to give some examples showing where a series from the prehistoric to the historic has been established. In Egypt again whole sequences of objects ranging from prehistoric into the historic have been made. Flinders-Petrie says: ¹

"Thus this chaos of over 900 types of pottery, hundreds of stone vases, weapons and tools of flint and of copper, ivory work and beads, extending over many centuries, perhaps one or two thousand years, has now been reduced . . . to an orderly series, in which we can not only state exactly the relative order of the objects, but also the degree of uncertainty and the extent of range which belong to each object. We have here a new and exact method for dealing with all those vague ages, as yet unfathomed, and for extracting all that is possible about their history. Prehistoric archaeology has made another step toward becoming an exact science. And now the responsibility of those who excavate is tenfold increased, as the extent of their care and exactitude will more than ever restore or ruin the history of the past."

Again,² the same author illustrates prehistoric specimens of stone from Egypt whose uses are unknown, and for which he wishes an analogy or explanation; the former at any rate may be given him in some of the shield-shaped "gorgets" that compose one class of the so-called "ceremonials" of the American Indians or mound-builders, provided they were different. While the explanation is still far to seek, it is not quite so far, for, granted one party to an analogy made clear, the other at once receives additional light.

To continue with Egypt. The important excavations of Dr Reisner and Dr Lythgoe formed more than one archeological series reaching backward into prehistoric times, and it must be remembered that that means somewhere in the fourth millenium, B. C. Flint-working camps of the prehistoric period and subsequent quarries of the Ptolemaic and Roman times were explored. This makes the sequence of the marble quarries on Pentelicon from Parthenon to Hotel Grande Bretagne, seem short, even curt.

There has been much discussion of the Pelasgian question and the Etruscan question. On the former one may quote rising eleven

¹ *Journal of the Anthropological Institute*, XXIX, n. s., 2, 300.

² *Man*, 1902, pl. B.

diverging theories, and on the latter still more. History and tradition are nearly forced to give up the problem. Archeology and Anthropology, however, are not ready to give it up, and Sergi has at any rate posed a good working theory for the Etruscans. He assumes, 1st, for palcolithic and neolithic Italy a homogeneous Mediterranean occupancy, dolichocephalic with the custom of burial; 2d, for neolithic and æneolithic Italy an intrusion of a brachycephalic race with the custom of incineration; and 3d, that late in the eighth century the Etruscans appear to be an intermingling. His theory of the homogeneous Mediterranean race is very good as a working hypothesis, and if we can find a solution and make it answer the questions, it should be considered a good Q. E. D.

Perhaps the most dramatic case of bridging over the gap between the old archeology, which dealt with late remains, and the new archeology, which deals with old remains, is that undertaken by Miss Harriet A. Boyd. After studying during the winter of 1896-97 at the American School of Classical Studies at Athens, Miss Boyd served with distinction as a nurse in the Greek army during the unfortunate war with Turkey. After the conclusion of the war, anxious to enter the Cretan archeological field on her own account, she received financial assistance from various colleges and universities in America, and instituted excavations at Kavousi and Gournia near the eastern end of the island. During the progress of her explorations she discovered remains representing periods of occupancy ranging from modern times well back into the prehistoric ages. Among these are the periods of Turkish, Venetian, Greco-Roman, and Mycenæan occupancy. Her discoveries were pushed so far with the comparatively unknown prehistoric times that she deemed it necessary to return and study in the Department of Anthropology of Harvard University. She felt that anthropology was perhaps the science most competent to deal with epochs which have not the assistance of history, traditions, and inscriptions for their elucidation. Miss Boyd, by her own homogeneous work, as it were, thus took part in bridging the gap between classical archeology and anthropology.

The proof of interest lies in publication. The Archæological Institute of America publishes the *American Journal of Archæology*,

and various and sundry long-named anthropological associations the *American Anthropologist*. The *Journal* has been overwhelmingly classical in its table of contents, the *Anthropologist* most preponderantly non-classical.

The classical side were rather beforehand in courteous overtures, and their board of editors has held and again holds now a representative of American archeology; the officers of the Institute are urgent for American material, the Society supports a fellowship in American archeology, and one of the last societies to be affiliated with the Institute is the Southwest Society of Los Angeles, with the highly original Charles F. Lummis as its particular inspiration. More than this, the American Anthropological Association last year received an invitation to join the Institute and the Philological Association — note the latter — in their annual meeting at Ithaca. The bidding was accepted, and the interesting sight was presented of men whose supreme interests had been bound up with the cranial index, or whose comparative powers had been taxed to determine whether the raven or the coyote was more potent for evil, listening to an esoteric discourse on conservatism in Greek literature and life, and on the polygonal qualities of the erstwhile church of SS. Sergius and Bacchus in Constantinople. While, therefore, classical learning now respects and appeals to anthropology and prehistoric archeology, the latter have much to learn from their elder sister. Vice-president Boas, of the Anthropological Association, returned the classical compliment at Ithaca in emphasizing the need of philological study and erudition in ethnology. "Who," he said, "would study the Greeks, not knowing Greek?" "Who," said he, "should study the Indian, not knowing Indian?"

Of dry-as-dust Teutonic method archeologists in America must drink their fill. The day is, we hope, happily passed when specimens are dug up and sold, with no care in description, no concern for their environment. Mounds are made for something more than scratching or even trenching; there are men who can turn over and replace a whole mound and find nothing, yet be content with results of negative significance, or of purely structural importance. Men are happy to work in laboratories, examining specimens, measuring and comparing them; are willing to publish their results, leaving it

to the next generation to say that two and two make four. It is the true scholar's greatest care that he say not $2 + 2 = 5$.

Accuracy, patience, and contentment we may learn from our older fellows in the field of archeology. Breadth of vision, boldness, and comprehensive synthesis the classical student may well take to himself when he knocks at the door of Anthropology to ask whence all these things be.

CAMBRIDGE, MASSACHUSETTS.

PAWNEE WAR TALES

By GEORGE A. DORSEY

NOTE. — The two tales of war here presented were obtained from a very old Pawnee warrior commonly called George Shooter, a Chaui. Their chief interest is in the information they furnish regarding the methods formerly pursued by the Pawnee in preparing for and while on raiding expeditions.

THE DEFEAT OF THE PAWNEE BY THE CHEYENNE, ARAPAHO, AND COMANCHE

One night a warrior sat in his lodge with many friends about him listening to his experiences while on the war-path. As the night wore on and he continued to tell of his exploits, a great longing seized him and he asked his friends if they would accompany him the next morning, for he had decided to start on the war-path again. On that same night three other warriors sat in their lodges and told their friends of their own experiences in war, and a great longing to fight filled the breast of each of these warriors; then they asked their friends to go with them on the morrow, for they too had decided to start on the war-path again. Before the break of day the four warriors and their men were on the way to the country of the enemy. During the day the scouts from each party met and at night the four parties came together. The scouts resented the presence of one another, for every scout preferred to have the country to himself, but the four leaders joined forces and traveled together to the enemy's country.

One day the leaders sat down in a valley and sent out men to kill buffalo. The men went out, killed a buffalo, and started to skin it. When they had it about half skinned, the buffalo rolled over, jumped up, and ran away with its skin flapping up and down. The men were dumb with astonishment for a time; then they went on and killed another buffalo, skinned it, cut up the meat and took it to camp where the leaders were. While they were roasting the meat, the men who had been out to kill buffalo told the leaders

about the buffalo that was nearly skinned when it jumped up and ran away from them. One of the leading warriors said to the other leading warriors: "This is a very bad omen; tomorrow I shall leave you three warriors to go your way with your parties, and I will go with my party to another country." The other warriors spoke up and said that there was no danger and that they should all go together. All the warriors stayed at the place over night, but the next morning the warrior who said that he was going to leave started out toward the north with his men. They had gone but a short distance when the other companies sent four scouts to look over the country and see whether there were any signs of enemies. The scout who started first told the other three scouts that he would go ahead; that if he should fail then another should follow, and then the other one.

When the first scout had climbed a high hill on the south side, the main body were looking at him. Just as he was about to stand up, for he had been crawling up the hill, a man on horseback came up on the other side so that they saw each other at the same time. The man afoot crawled back. The man on horseback turned around and went back whence he came. Then the first scout gave a sign to the second that he (the first) had been seen; then the second scout gave the sign that the enemy had seen their scout, to the third scout, who passed it on to the fourth. The fourth man ran to the place where the main company of warriors was and told them that the first warrior had given a sign to the second, and the second to the third, and the third to himself, that an enemy had seen the first scout. The war-party slipped quietly away into a thickly timbered country and there they stayed. The other three scouts then stopped crawling and stood up and walked toward the place where the leaders and their warriors were in hiding. While they were walking over the prairie, several men on horseback came over the hill, saw them, turned their horses about, and disappeared over the hill. In a few seconds the enemy all came over the hill on horseback. They whipped up their ponies and rode toward the timber.

In the meantime the other leader who had gone had turned back with his company and joined the main body of warriors, and all the warriors were putting on their war clothing. There was one young

man who put on a wolf robe, seized his bow and arrows, jumped up in front of the leader and the men, and said: "Leader, to-day the Wolf-man shall defend you and your men!" Then he went back and sat down. Then another young man jumped up and stood before the leader. This man had a bear robe about his shoulders. He said: "Leader and men, to-day the Bear-man shall defend you!" When he sat down, another man, who had a buffalo robe about him, stood up before the leader and said: "To-day Young-Bull shall defend you and these men!" He sat down and another man, with a coyote robe on, stood up and said: "Leader, to-day the Coyote-man shall protect and fight for you!"

During this time the enemy were rapidly approaching on horseback. The four leaders then arrayed their men in a line and said that all the men should fight for their leaders. The enemy came and they were many. As they rode up, the four men jumped up on a bank and fought them, killing several and driving them back. Again the enemy made a charge and the warriors beat them off again. Again the enemy made an attack upon the warriors and again they were driven back.

About this time a man called out from the distance. The warriors looked and saw many men on horseback coming from another direction. The man who had hallooted to them, called out, saying: "My brothers, Pawnee, we are Comanche; the Cheyenne and Arapaho are fighting you; you have driven them back four times; now we will stand here and watch you fight, but we will not take part, since you are our brothers." When the Comanche finished speaking, some one from the warrior crowd of Pawnee shot at him and hit him upon the forehead, killing him instantly. The Comanche were aroused at once, for the Pawnee had killed their chief in return for their offer of peace. They rode away and joined the Cheyenne and Arapaho.

Then the Cheyenne, Arapaho, and Comanche all rode up to the Pawnee and surrounded them. The four warriors fought well. The Coyote-man, one of the four men who spoke, was killed. The enemy surrounded them, retreated, then rushed up again many times, but the Buffalo-man and the Bear-man held out against them for a long time. After a time, the Bear-man saw that there was

little hope for them and ordered the men to run into a ravine that extended up the hill side. They were surrounded in the ravine, for they did not know where to go. The Buffalo-man led the way, killing the enemies in front of him as he progressed. When the Buffalo-man had killed one man, another Pawnee caught the pony of the dead man, mounted it, and rode away. The Bear-man plunged ahead by fighting his way through the enemy, who closed in on all sides, killing them on the right and on the left. The Bear-man brought up the rear and fought the enemy from behind.

The enemy had killed many Pawnee warriors, but the man they wanted very much to kill was the Buffalo-man. In those days it was customary for the Pawnee to have their hair roached, but the Buffalo-man had long hair; so the enemy wanted to kill him and take his scalp. The Buffalo-man and the Bear-man succeeded in getting the Pawnee through the line of the enemy, but out of the one hundred and twenty men only twenty were left.

PEACE BETWEEN THE PAWNEE AND THE COMANCHE

There was one man who made up his mind to go on the war-path. He sent for several other young men to join him. They sat in his lodge with him and smoked the warrior's pipe. The warrior then told the young men that he had it in his mind to go on the war-path and that he had selected them to join him. The other young men, when they heard it, were glad. Each in his turn spoke and said: "I will go with you; this night I go to my lodge and tell my mother and sisters to make me several pairs of moccasins and to fill the moccasins with pounded buffalo meat and corn." The warrior was glad to know that the young men were willing to go with him. The young men left the lodge and went to their homes, and each told his mothers and sisters to make several pairs of moccasins and fill them with food. The mothers and sisters of these young men made several pairs of moccasins that night, and the next day they made more, so that by night they had made all the moccasins that the warriors needed. In the night the warrior sat in his lodge and the young men came in with their packed moccasins. The young men sat around the fire in the lodge. Some of the young men went out in pairs and sang war

songs around the village, to let the other young men know that they were about to leave the village to go on the war-path. Toward morning all had come into the lodge and the warrior led them out of the village.

The war-party went away into the southern country for many days and months. When they reached the enemy's country they were very careful to hide during the day and to travel only during the night. One day they were traveling along a ravine, when one of the scouts climbed up the side of a hill and saw a lone tipi on the prairie. He came down and reported to the leader that there was a lone tipi on the prairie. The leader went up the hill and saw the tipi there by itself. He went back and selected one of the scouts to go and visit the tipi and see who was in it. The scout went up, came to the tipi, peeped in, and saw that there were only one woman and a little boy about four years old. The woman was close to the entrance, pounding dried meat with a pestle. The scout went back and reported to the leader that there were a woman and a little boy in the tipi. The leader then told all the warriors to lie down in the ravine, saying he was going up to see whether he could persuade the woman to feed them. When the leader reached the top of the hill, he looked over the country and saw a man coming on horseback. He lay down and hid. When the man on horseback came to the tipi, he lariatied the pony and went inside. Then the leader arose and called his warriors and they followed him to the tipi. The warriors sat down outside of the tipi, while the leader went close up to the tipi and sat down. The little boy in the tipi was playing and laughing. The leader peeped into the tipi, and he saw that the man was lying down with a robe over his head, and the woman was still pounding the buffalo meat. The leader sat there for a long time, making up his mind whether to kill the people or whether to save them. He heard the boy ask his mother to give him some meat. The mother took some pemmican, pressed it together and made a ball of it, and gave it to the boy. He ran out of the tipi, up to the leader, put his arms about the leader's neck, and sat in his lap. The leader took the pemmican, then the boy went into the tipi to get something more. Again he went up to the leader and gave him the ball of pemmican, then

went into the tipi and asked for another ball of pemmican, took it out, and gave it again to the leader. Several times the boy took out meat and came back without any. The woman, knowing that there were no dogs about the tipi, thought there must be somebody outside to whom the child was giving meat. She called her husband and told him that she had given several balls of pemmican to the child, that he had gone out and returned without any, that she was sure she heard voices outside.

As the man rose up in the bed and rested on one of his elbows, the leading warrior made a motion to his warriors to follow him into the tipi. The leading warrior threw open the entrance and went in, and as soon as he went in the others followed him. The enemy lying in bed was paralyzed with fear. As soon as the warriors sat around the circle of the fireplace, the leader made a motion for the man to get up, but the man was so paralyzed that he did not get up for some time. The little boy in the meantime ran up to the leader and sat in his lap. The leader then made a motion to the man lying down to get up from his bed and to sit with them, assuring him that they did not intend to do them any harm, for said the leader, "I have a child like this little boy at my home." The little boy came and touched him with his arms and gave him something to eat, then gave him water to drink. "I have entered your lodge, and as I sit in your lodge the little boy again comes to me, as if he were my son; he sits in my lap; I love the little boy as I do my own, so you need not be afraid that we will kill you." The man lying upon the bed arose and sat with them. He breathed a sigh of relief, then he turned around to his wife and told her to put a kettle over the fire and to cut a little dried buffalo meat and boil the meat for the people. Then the man told the leader that his brother-in-law was the head chief of the Comanche; that the Comanche had been camping there and had broken camp that morning; that the men had gone over the hills but a short distance; that the people were waiting for them at another place; that they knew that the man of the tipi was hunting his ponies, and that this was how he and his family came to be alone in this spot; that he had been looking for his ponies that had strayed away from him and had not found them. The man of the

tipi further told the leader that he was glad that the warriors had not killed him, his wife and his child; and that they should start after they had eaten, and that he would take them to the village of his own people and give them assistance in capturing many ponies. The woman took the kettle from the fire and the warriors took charge of the kettle. The leader selected two men to take the meat out of the kettle and to divide it equally among the men. After the meat was divided equally, they all ate. Then the leader told the man that they were going down to the ravine to hide until night, when they would go with him to the village of his people. The leader and his warriors went out from the tipi to the hollow. Just as they climbed over the hill, one of the warriors looked back and there came upon the hill behind the tipi a man on horseback driving several ponies. The man who saw them called to the leader, who stopped and looked. He said that it was another man who was bringing the ponies that belonged to the man of the tipi. The warriors hid in the ravine, while the leader stood upon the hill. The man who brought the ponies went into the tipi. Shortly after he went in, the man of the tipi came out and went to the place where the warriors were in hiding. Then the man told the leader and the warriors that his brother-in-law had brought the ponies to his tipi and that, as his brother-in-law was chief of the Comanches, he had asked the leader and his warriors to come to the tipi again. The warriors all arose and followed the man to his tipi. They entered the tipi and there the chief was sitting by the woman at the southeast of the entrance of the tipi. The chief arose and shook hands with the leader, then shook hands with all the others. He made signs to the leader to let him know that he was thankful that he had not killed the man, the woman, and the child. He made the leader understand that the woman was his sister, that the child was his nephew. The chief also told the leader that the family were to take down the tipi, bring the ponies and pack all their things on them and go where their village was; that this man must make his tipi on the south side of the village, some distance away, and that they must come out there after dark, for the woman would have something for them to eat. The chief further said that he was going to give the leader

a fine pony with a saddle, and that when they got ready to go away, he would help the warriors capture many ponies. The leader said it was good. When this was all arranged the warriors went back and hid in the ravine.

The man and woman took down the tipi, brought their ponies and packed them, and went on to their village, and the warriors followed. The family arrived at the village and put up their tipi on the south side, and after dark the warriors went to the tipi and the chief and the man of the tipi were there. The chief told the Pawnee warriors that he was going to have the crier go through the village and tell the people to go to his tipi to tell war stories. The warriors, being afraid of treachery, told the chief that if he did not come back they would have to kill the man, woman, and child, but the chief said that he was in earnest. So the chief went to the village and called the crier to go through the village and invite all the men to come to his tipi. The chief stayed there. When all the men entered his tipi he told them that he wanted them to tell war stories. When the men came they began to tell their war stories and the chief slipped out and went to the tipi where his brother-in-law was with the enemy. He entered, and taking the warrior by the hand, led him out and gave him the pony and saddle he promised him. Then they went back into the tipi, the chief and the leader, and the chief begged the leader to give him the pipe that he carried. The leader said that he could not do that, but that when the chief should help the warriors capture many ponies and after they had been three days on their way home, he would kill one of the ponies, and then if the chief would go so many steps west of the dead pony he would find the pipe in the grass. The Pawnee did not want to give his pipe to the enemy for fear he would give him all the power that the pipe possessed. The pipe was one with which smoke had been offered to the different gods in the heavens, so that the gods watched over the men who carried the pipe and gave them success in capturing ponies or attacking people. By dropping the pipe it would lose its power. All these things were agreed on by the warriors and the Comanche chief. After the warriors had eaten and were given plenty of meat to carry home, they began to get ready to go with the chief where the ponies

were. The chief led them to a bottom land where all the ponies were. He told the Pawnee warriors to take as many as they wanted. The Pawnee took all the ponies they could manage and went on, the chief going home. The Comanche men who were in the chief's tipi were still telling war stories, but by morning there was a noise through the camp that the enemy had come to the camp and stolen many ponies. The chief then had the crier go through the village to tell the men to come to his tipi and he would lead them and try and catch the enemy who had stolen their ponies. So the warriors gathered around the chief's tipi and they struck out after the Pawnee warriors.

For several days they went on their trail, and on the third day they could see them going, but a long distance away. About that time the Comanche found a dead pony lying upon the path. The Comanche stopped and the chief kept going around until at last he went as many steps as he was told, and there in the grass he found the pipe. The chief picked it up and told them that he had found the pipe. The Comanche were glad that the Pawnee had dropped their pipe, and thought that all the powers that went with the pipe might now be given to them; so they were glad to turn back. Many years after, the Comanche and Pawnee met. This story was told to the Comanche, and then the Comanche understood why so many ponies were stolen from them, and why the chief had invited all the men to his tipi. When the Comanche knew the story they were not afraid to visit the Pawnee, for now they were friends.

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HOPI SHRINES NEAR THE EAST MESA, ARIZONA

By J. WALTER FEWKES

INTRODUCTION

The more we know of the sociological evolution of the Pueblos, the more evident it is that the increase of population and attendant modifications in culture are due only partially to internal growth or the enlargement of existing families. Additions of new clans are most vital factors in producing these changes, always tending to modify more or less the culture of the population with which they have become incorporated. Survivals of these additions may be detected in cults, language, and arts of the component people. In order rightly to estimate the modifications resulting from successive incorporations of other clans with a people, it is important to recognize distinctive culture features belonging to the several component clans. This can be done by determining the sites of their former habitations and investigating the archeological evidences of culture contained in them.¹

The main but not the only source of our knowledge of the migrations and successive halts of Hopi clans is tradition, which indicates the pueblos (now ruins) that have been occupied by them. Culture objects from these ruins may verify or disprove tradition. Each clan added to a Hopi pueblo, being in itself a unit, has its own history, that may be regarded as independent of other chronicles of the kind up to the time of its fusion into general Hopi history.

Some of the characteristics of clan culture history survive among the Hopi to the present day. The first step in an investigation of Pueblo culture evolution is, then, definitely to associate ruins with clans. This may be done by several methods, one of the most reliable of which is by traditions.

I have already shown how certain Hopi clans claim ownership in eagles' nests near distant ruins and how this claim may be used

¹ Most of the data here recorded were gathered between 1890 and 1894, while the author was connected with the Hemenway Expedition.

in support of traditions. There is a similar proprietorship in shrines and springs¹ near ruins, and the identification of their present owners may aid us in determining what clans were once inhabitants of the pueblos of which these ruins are the remains.

In order to indicate the importance of shrines and springs in a study of Pueblo sociology, let us take for an example the clans that survived the fall of Awatobi. When this pueblo was destroyed at the close of the seventeenth century, it was inhabited by at least four peoples — the Awata (Bow), Honani (Badger), Buli (Butterfly), and Piba (Tobacco). It would appear that the population was composite and that the three peoples first named formed the nucleus of a population which was joined later by the last mentioned (Tobacco), that formerly lived south of Walpi on the banks of the Little Colorado. The Bow, Badger, and Butterfly came from the Rio Grande valley and were probably of either Keresan or Tanoan origin.²

In the dispersion of the survivors of Awatobi the Bow people went to the Middle mesa and the Tobacco to Walpi, while the women of the Badger and the Butterfly were appropriated by the Oraibi. Incidentally it is instructive to note that some of the Badger and the Butterfly peoples, returning to the East mesa, aided the Asa in founding Sichomovi, while the Bow people moved from their Middle mesa settlement to Walpi, where their descendants still live.

A few years ago the idols of the Alosaka at Awatobi were removed from their shrines and carried to the store of an Indian trader, the late Thomas V. Keam, to whom they were offered for sale. It was then learned that these idols were especially revered by the descendants of the Awatobi clans living at Mishongnovi, for almost the entire population of this pueblo visited Mr

¹ *American Anthropologist*, n. s., II, p. 690-707, 1900. Every clan in Walpi has a right to water from the largest springs, but individual clans claim certain springs, especially those at distant ruins, as their property.

² As most of the ruined pueblos on the Antelope mesa were of Keresan origin, it is probable that Awatobi, which belongs to the same series, was founded by the same clans. At least we may logically conclude that the nucleus of that historic pueblo came from the eastern pueblos, especially as this conclusion harmonizes with the evidences that the Hopi culture was in the first instance of eastern origin and therefore more modern than that of the Rio Grande pueblos.

Keam and begged for their idols. He delivered them to the priests and they were carried back to the Middle mesa.¹ It was discovered also at that time that several of the Awatobi shrines and springs were still used ceremonially by certain of the Hopi clans who claimed them as their property.

These facts might be paralleled in the history of many other mounds near the East mesa. Even remote ruins like Homolobi, Kicuba, and Lenyanobi are still regarded as the property of the clans that once inhabited them, and their old shrines and springs still figure in the ceremonials of those clans.

Another instance of the verification of a clan migration by ownership and position of a sacred spring is suggested by Sisibi, near the Moki buttes. This spring lies on the trail taken by the Southern people of Walpi in their migration to that pueblo from Homolobi. It is visited annually by the chief of the Kwakwantu, a warrior priesthood of Southern clans, for sacred water used in the New Fire ceremony.

Several clans are said to have migrated separately or together from Homolobi northward to Walpi. Among these were the Cloud, Lizard, Tobacco, Rabbit, and possibly the Young Corn. The Flute, Sun, Squash, and others had preceded them in this migration. When some of the clans came to a place called Kokopelti a short time before they reached the Moki buttes, the Young Corn separated from the others and then or a little later the Tobacco and possibly the Lizard went to Awatobi. The remainder continued their journey to a pueblo called Pakatcomo, later to Tawapa, and ultimately joined the Walpians. After the destruction of Awatobi the Tobacco peoples were united with their former kindred in Walpi.

Judging from the time spent relatively in the manufacture and consecration of prayer emblems, it might well be concluded that these objects are essential features of every considerable Hopi ceremony. As it rarely happens that any rite is complete without the introduction of these objects, their correct interpretation is a key

¹ These images are now kept in a cave near Mishongnovi, and are probably the same as those figured by Dr O. Solberg in his article Ueber die Bahö's der Hopi, *Archiv f. Anthropol.*, bd. iv, no. 1, fig. 5.

to the meaning of the ceremony. Their form and character vary in different rites, as may be seen by consulting descriptions of different festivals. Appendages to these objects are significant, and each type has a prescribed form and pigmentation. Although varied in shape, color, and the materials of which they are made, prayer emblems fall into several types, among which may be mentioned prayer sticks,¹ clay images, miniature bowls, artificial eggs, meal, tobacco, and food of various kinds. It would be an important contribution to science to describe all the forms they assume, but the present article considers more especially the places where these offerings are deposited and incidentally certain other inclosures where sacred objects are kept. I have attempted to enumerate some of the better known shrines near the East mesa and have pointed out their distribution in that neighborhood, that this knowledge may serve as a guide in the determination of shrines near ruins and lead to a more complete identification of the clans that once inhabited the dwellings now represented by these ruins.

The number of shrines² near the East mesa is too large to consider exhaustively at this time, so it will be necessary to choose a few of the more significant for description. There are others, of course, including many at the other mesas that are here omitted.

In one sense any inclosure in which ceremonial objects are preserved is regarded by the Hopi as a place for prayer offerings. Thus a cave or a recess in a cliff where, for instance, the jars used in washing the reptiles in the mysterious rites of the Snake dance are kept, or the cavern where certain dilapidated effigies of plumed serpents are stored, is considered with a certain amount of reverence. The same is true of the cleft in the rock containing the Apache scalps and of the burial places of the eagles. It is not possible to draw a strict line of demarcation between cemeteries and true shrines.

Among the Hopi a shrine varies in form and construction from an inclosure in which an idol is permanently preserved to a simple

¹ At my suggestion Dr Solberg has lately made a collection of Hopi prayer sticks, which he has described in a special article (*op. cit.*) in which several shrines are likewise figured.

² The word shrine is used broadly to designate a devotional place other than the ceremonial chambers, or *kivas*.

cleft in the side of a boulder or cliff. One of the simplest Pueblo shrines is a pile or a ring of stones so placed as to form an inclosure for the reception of offerings. Abandoned shrines near inhabited pueblos are not uncommon, new shrines being constantly made as new conditions may seem to demand them. The situation of shrines is determined by convenience and by safety of access as well as by other considerations. Predatory tribes have sometimes raided so close to the Hopi mesas that shrines could not be visited without danger. When a new shrine is made to replace an old one the latter is still regarded with reverence, and in it offerings are still placed at stated times—a custom that persists even after the idols or other sacred objects have been removed. Thus the figurines of the Alosakas¹ no longer occupy their ancient crypt at the ruin of Awatobi, yet their former home, the old shrine, is still treated with reverence. Talatumsi, the Walpi equivalent of the Earth goddess, called the Alosaka woman, formerly had a shrine to the north of Hano, but the site was too exposed to hostile Utes and Apaches; the idol was removed to its present home, but at the New Fire ceremony each year offerings are still placed in the old shrine.

Of the several types of Hopi shrines the most complicated and characteristic is that which contains an idol or image to which the shrine is especially dedicated. The shrine of Talatumsi is the best known of this type. A majority of the larger shrines are of the simplest construction, consisting of stones arranged in rings with a large rock on one side forming a back. Both simple and complex shrines often contain stones, concretions, and various other oddly-shaped substances.

In the theogony of the Hopi, as among other agricultural peoples whose ideas are not modified by acculturation, living beings are supposed to have sprung from a preëxisting earth, the origin of which is beyond their philosophy and therefore not considered by them. The earth in their conception always existed, and, following the analogy of growing vegetation, organisms grew out of the earth

¹ The Alosakas, of which there were two images at Awatobi, one representing the male, the other the female, are equivalents of the Hopi *Muyiñwā-taka* and *Muyiñwā-wūqti*. The former would appear to be a sky god, the latter an earth goddess. In a way both are rightly designated germ gods, clan designations of conceptions which find expression under many different names.

or were born like animals. The earth to them is not a creator but a mother, the genetrix of lesser gods and animals, and the ancestor or first of the human race. In order to carry out the analogy of conception or gestation, a mythic father, or Sky-god, the male principle of nature, was assumed and personified as an ancient Pueblo god of highest rank. This god, like the personation of the earth, has various synonyms or equivalent designations, the multiplicity of which would appear to indicate a most complicated and advanced mythology, although in reality it is quite simple. The Earth mother has also many names derived from different clans or attributes. We find the Sky-god called Heart of the Sky, Sun-god, Plumed Serpent, and by numerous other designations. No satisfactory interpretation of Pueblo mythology is possible before the synonymy of the gods shall have been worked out better than at present.

The Hopi have several shrines erected to such earth beings as Spider-woman, Tuwapoñtumsi, Muiñwū, and Masauū. Sky and Sun gods likewise have their places for prayer offerings. Many shrines are dedicated to the Rain gods, or Katsinas,¹ ancestors of the clans. So far as I have been able to discover, there is no special shrine of the warriors similar to that of the members of the Zuñi Priesthood of the Bow on the great mesa near their pueblo. The places of offerings to the Plumed Serpent, a Sky-god introduced from the south, are springs, not true shrines.

SHRINES TO SPECIAL SUPERNATURALS

Talatumsi. — This personage, a synonym of the Alosaka-wūqti, or the Alosaka woman² of Awatobi, has two shrines at the East

¹ The word *katsina* is apparently derived from pueblos of Keresan or Tanoan stocks. A *katsina* is sometimes called a "sitter," referring possibly to the custom of burying the dead in a sitting posture. Among the Zuñi, as with the Hopi, the *katsinas* are ancestral gods that are supposed to live in an underworld or mythic dwelling under or associated with a lake or spring. These ancestral spirits are personated from time to time in sacred dances, when prayers are said to the personators vicariously for rain and other blessings. According to Mr. H. R. Voth, the word *katei* means "living"; possibly *katsina* is from *katei*, "living," and *na*, "parent."

² The Tewa equivalent of *Talatumsi* is called by them *Cenikwia*, the Horn-woman (*tala*, "dawn"; *tumsi* or *tumasi*, "elder sister" or "woman"). *Tumas Katsina*, known at Oraibi as the man who bears the helmet with crow feathers, is apparently the elder

mesa, one of which (pl. xxvi, fig. *a*) is situated on the terrace among a pile of rocks to the left of the so-called ladder trail¹ from Tawapa to Walpi. The image of this being is ordinarily seated in a stone inclosure or cleft of the rocks between two boulders, whose entrance is closed by a wall of small stones and is opened only when the shrine is visited for ceremonial purposes. Talatumsi plays an important rôle in the New Fire ceremony and her image is carried to the mesa top quadrennially when the rites elsewhere described² are performed before the shrine.

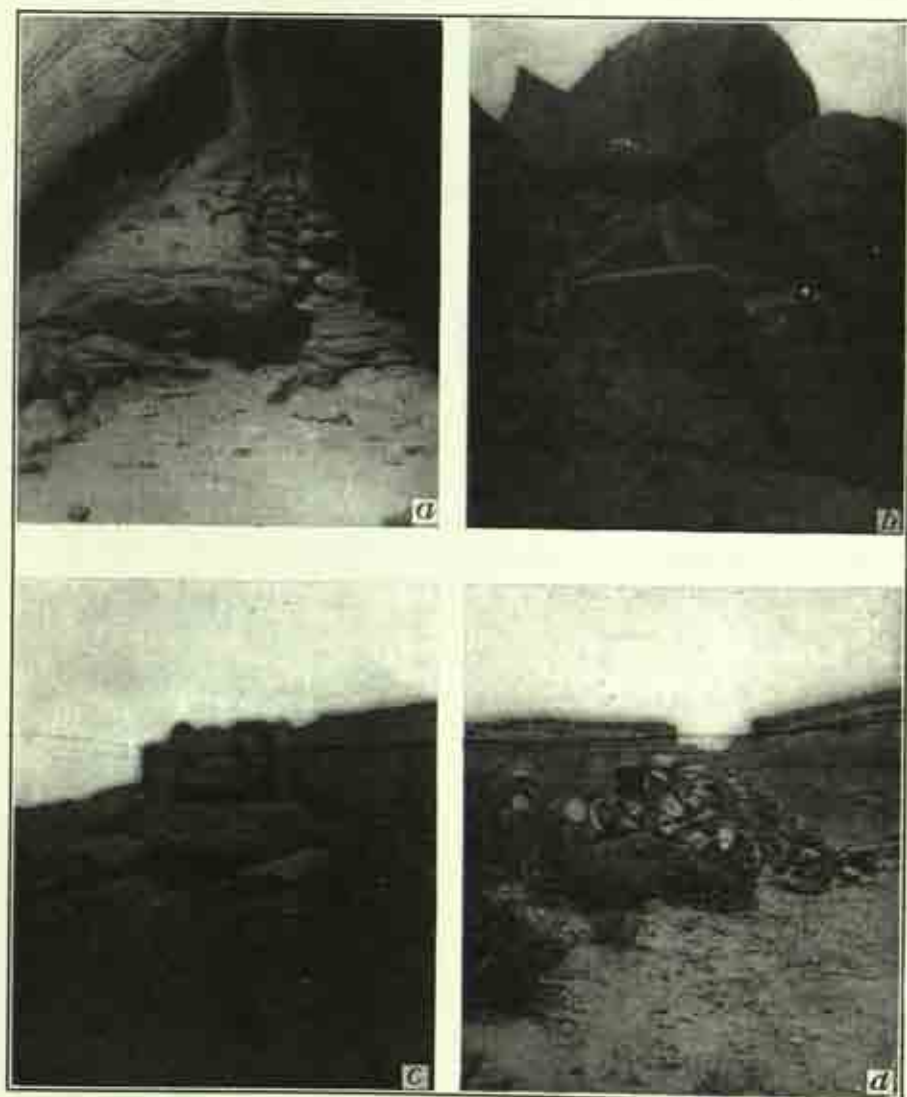
Tuwapoñtumsi. — The best known shrine of this Earth-woman is situated to the left of the trail leading from Walpi to Mishongnovi, just below the ruin Kisakobi, or Old Walpi. It is a simple box-shaped inclosure (pl. xxvi, fig. *b*), or rude crypt, made of slabs of rock standing on edge, open at the top and on one side. Within the inclosure are a log of petrified wood, and other objects of stone. Offerings are presented at this shrine in the New Fire ceremony in November, as elsewhere² described. At this time the whole ruin of Old Walpi is regarded as one great place for offerings, and after a procession around the mounds has been made by the two Fire societies, offerings are placed in the shrines. The Earth-woman above mentioned is sometimes called Tawakütcmana, or Sun-white Maid, and the concept is known by various other names also.

Shrine of Salt Woman. — Light is thrown on the situation of Hopi shrines by a study of trips made by this people to the Grand canyon to obtain salt. At that time they carried offerings to the Woman of the Hard Substance, sometimes called the Salt woman, who had a shrine in or near the canyon. So far as I can trace traditions, it would seem that the Spaniard Cardenas in 1540 followed the same trail that the Hopi still use when they visit

sister of the Katchinas. She is associated with the child-floggers, called at Walpi the Tuñwup Katchinas, at Oraibi the Ho Katchinas. These and many other duplications of names of the same god among the Hopi are very often perplexing in a study of their mythology.

¹The ladder trail is the steepest of all the routes leading from the terrace into Walpi and is almost precipitous at one point where a stone stairway replaces a former ladder. This trail passes between two conspicuous stone pinnacles before entering the small court in which the Moñkiva is situated. Its name is derived from the old ladder once used at the steep part of the ascent, but now abandoned.

²The New Fire Ceremony at Walpi, *American Anthropologist*, n. s., 11, 1900.



HOPÍ SHRINES

a, Shrine of Talatumsi. b, Shrine of Tuwapostumsi. c, Coyote trap. d, Masaui shrine.

the Havasupai Indians in Cataract canyon, or practically part of the old route used in these excursions after salt. This trail apparently crosses the Little Colorado not far from the Moenkopi trail at Tanner crossing, a few miles below Black falls. The route with Hopi names attached, as given to me by one of the Indians, will be considered in another article.

It is said that before gathering the salt which hung from the cliffs in the form of "icicles," the Hopi deposited prayer sticks, one before the image of the Salt goddess and the other before that of the God of War. It was their custom to allow themselves to be suspended over the edge of the cliffs by ropes, in order that they might break off the salt "icicles" and transfer them to their sacks.

Great Masauû Shrine.—One of the best known of all the shrines at the East mesa is the Great Masauû shrine, situated among the foot-hills west of the mesa, near the main trail to Walpi. This shrine, as shown in the accompanying plate (xxvii, fig. *g*), has a rock on one side but is made up largely of twigs and branches that have been thrown upon it by those passing with firewood. In the same shrine may likewise be found small clay vessels, prayer sticks, and various other offerings. These are not confined to the shrine but are found also in front of the opening, as in the case of the small bowl shown in the figure.

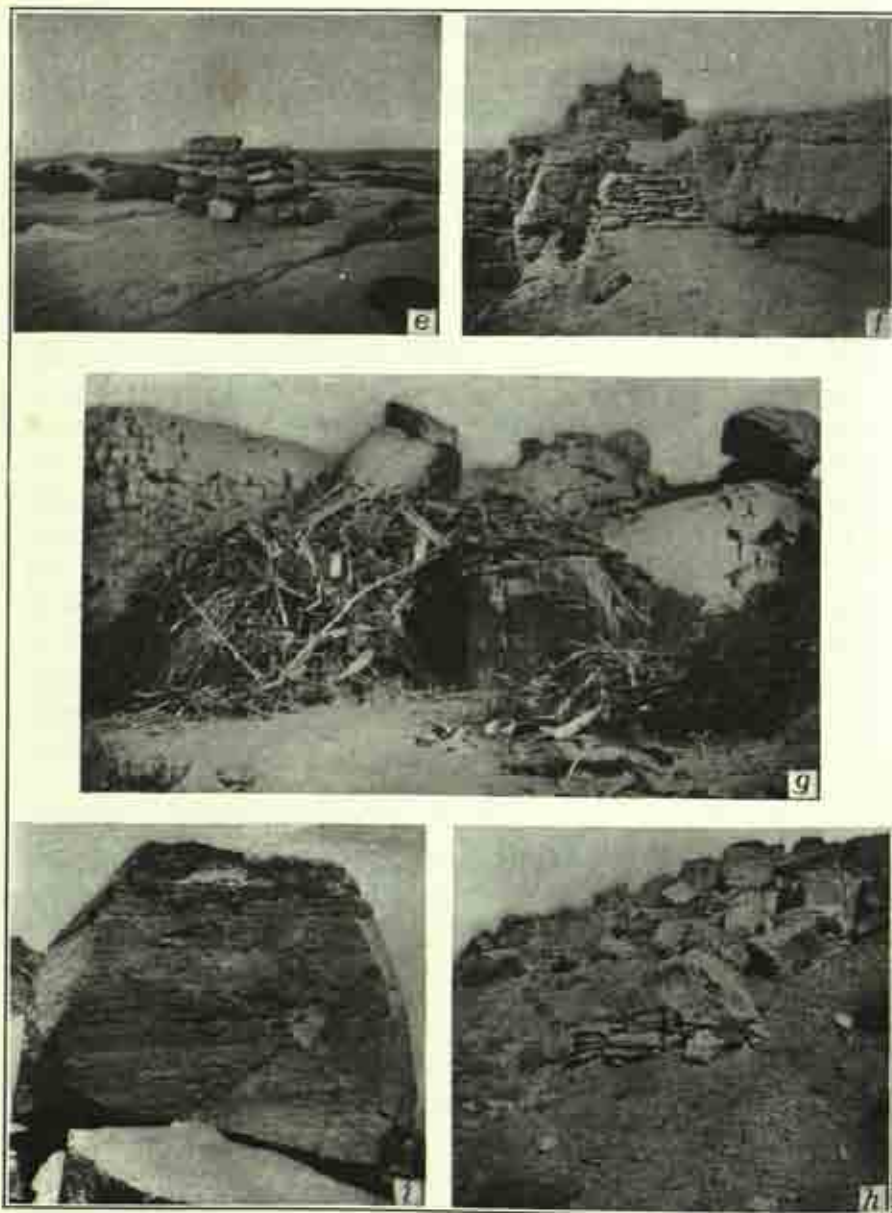
Small Masquû Shrine.—Along the top of a ridge forming the eastern border of the sand dunes near Isba, north of the peach-trees, are four piles of stones (pl. xxvi, fig. *d*) mixed with small fragments of wood. These occur at intervals alongside the old trail, now abandoned, from the valley to Hano; in former days those setting out to gather wood on returning with their loads threw on the piles offerings to the god Masauû in the belief that by so doing they avoided fatigue.

In ancient times the annual wood gathering in November, just about the time of the New Fire ceremony, was the occasion of the exhibition of an interesting custom that still survives at the East mesa. The last time I observed it was at the close of November, 1900, when the events here narrated occurred. On the 28th many men of Walpi started for the wooded mesas about six miles north of the ruin Sikyatki. Early on the morning of the 29th the town

crier, or the chief, from the top of the highest house in Walpi gave notice to the girls of the pueblo to don their finery and proceed down the trails to meet the returning wood gatherers. About the middle of the forenoon several venerable chiefs gathered at the spring Moñwiba, and later went to a knoll called Mancitcomo, where girls from the pueblos had collected in considerable numbers, all dressed in their best clothing. Among the patriarchs who gathered there were Kwatcakwa, the sun-chief, Hoñyi, the speaker-chief, Hayi, and Pautiwa, the warrior-chief. At Wala the speaker-chief laid on the trail a cotton string with feather attached and drew a line of meal on the ground as symbolic of opening the trail to the pueblo for the returning wood gatherers. The old men kindled a small fire and smoked, quietly awaiting the wood gatherers, who soon appeared and were greeted with a "thank you." As each group appeared, one or another of the maidens would run out and present her chosen youth with a small package of corn mush (*sowibi*). If he took it the maiden followed him along the trail to the mesa top. In this way the maidens showed their preferences for certain youths, generally for those to whom they were betrothed, or in some instances openly expressed their preferences for the first time. Married women take no part in this custom for obvious reasons.

After all the wood gatherers had passed, each of the old men gathered a bundle of greasewood, threw it on his back, and proceeded up the trail. As the crowd approached the town, a considerable number of people had gathered on the house tops of Hano to watch the proceedings, and amid much laughter the loaded burros, with their happy drivers followed by the bashful maids, passed through the pueblo. Formerly this custom was observed by many people, but at present the number of participants is but small. It is said that in old times a procession of this kind yearly passed the four piles of stones and twigs above described when it returned to the pueblo.

There are numerous other small shrines of this kind near the East mesa, some of which are collections of small stones thrown there by passing Indians, others stones deposited in natural crevices of boulders or cliffs. In the same category may be placed also the rock called Masowa, or Skeleton Stone, situated about halfway



HOPÍ SHRINES

- e*, Sun shr. *f*, Warrior shrine at entrance to Walpi. *g*, Shrine of Wukomasau. *i*, Pictograph of mountain lion. *h*, Snake shrine.

between Tawapa and the elevation to the left of the eastern trail leading to Hano, upon which stands the house purchased from Polakka, a Tewa Indian, and for a long time occupied by officials of the Government.

*Plumed Serpent Cult.*¹—This cult appears among the inhabitants of the East mesa pueblos in two distinct forms, that of Hano and that of Walpi. The former is the Tanoan, the latter, the Hopi variant. One came from the east, the other from the south. The Plumed Serpent cult is a form of sky or sun worship introduced into Walpi by the religious fraternities of the Cloud, the Flute, and other southern clans. Effigies of this serpent are employed in the Winter Solstice rites of these people and in the March dramatizations. It crops out likewise in the New Fire ceremony when members of the Kwakwantû, a warrior society, carry wooden slats representing plumed serpents, and their chief bears an effigy of the same monster, made of the stalk of the agave plant. The spring Tawapa, supposed to be the home of the Plumed Serpent, no doubt received its name, Sun spring, from the connection of sun and serpent worship.

In the dramatization that occurs at the East mesa every March, the Tewa and the Hopi employ effigies² of these reptiles made of cloth, skins, and gourds. Formerly these effigies when not in use were kept in caves outside the pueblos, but of late intramural receptacles have been made for them. The effigies of the Plumed Serpents of Hano were formerly kept in a small cave on the west side of the mesa near the ruin at the mound Tukinobi, but they are now concealed in four jars in the home of the Tobacco clan. The extramural crypt or "home" contains fragments of old abandoned effigies, hoops, cloth, and broken gourds, with fragments of wood and pieces of cord, and is occasionally visited by priests who sometimes make offerings at that place.

¹ The Horned, or Plumed, Serpent cult, was widely distributed in Mexico, the Pueblo area, and among the ancient inhabitants of the Mississippi valley. It is a form of sun and sky worship, and is almost universally said to have been brought to Walpi from the mythic land in the south called Palatkwabi. The horn is constantly represented on the head of figures of this serpent, feathers being less constant.

² I was repeatedly warned not to touch these effigies, even when they were not in use. Women never allowed even their garments to come into contact with the effigy of the Great Snake.

Sumaikoli Shrine.—Several men at the East mesa belong to a sacerdotal society called the Yayas. They claim to be able to cure diseases of certain kinds and the stories they tell of their necromancy are past all belief. In treating the sick they make use of heat, ashes, or other products of fire and most of their jugglery is with firebrands, so that one would not be far astray in calling the Yaya a Fire society; hence I have spoken of their biennial festival as the Little Fire ceremony. They kindle fire with two sticks, and at the time a row of masks called the Sumaikoli and Kawikoli, a fetish of the Earth goddess, Kokyanwūqti, the Spider-woman, and other objects are arranged in the form of an altar. Perhaps the most significant and characteristic ceremonial object employed by the Yaya is a wooden framework, called by Mrs Stevenson a "charm." This is carried in the hand in the manner shown in my representations of the Sumaikoli and Kawikoli.¹ Two of these "charms" were obtained by Mr Stewart Culin in a collection from the Canyon de Chelly. These specimens, now in the Brooklyn Institute Museum, possibly belonged formerly to the Asa clan, who claim once to have inhabited the ruin near which these objects were found. If so, there is no doubt of the late occupancy of some of the cliff-dwellings of the Canyon de Chelly, as the Asa moved to this canyon in quite recent times.

It would appear that the Sumaikoli ceremony was brought to the Hopi by eastern Pueblo clans, and I am inclined to attribute its introduction to the Asa or to some Hano peoples supposed to be Tanoan. Mrs Stevenson has described the Sumaikoli and Kawikoli (Saiapa) as they are personated in Zuñi, where the cult is much more elaborate than at Hano or Walpi. The Sumaikoli cult seems likewise to have been added to the original culture of the Zuñi since they settled in the Zuñi valley or while their home was farther down the Little Colorado.²

¹The Lesser New Fire Ceremony, *American Anthropologist*, III, 1901; *Twenty-second Rep. Bur. Am. Ethnol.*, pl. xxxv, p. 96. Like so many other Hopi ceremonies, the Sumaikoli is of Keresan origin.

²The Sumaikoli apparently originated at Cipia, an ancient Keres habitation near Isleta or Laguna, New Mexico, from which it spread to Zuñi and to the Hopi mesas with the possible exception of Oraibi. This appears to be one of many ceremonial personages common to the Hopi and the Zuñi that were not derived one from the other but arose

Just opposite an old house in Hano, where once lived the sun-priest who was also chief of the Sumaikoli, situated on the eastern rim of the mesa, there are a few small stones forming an inclosure in which are biennially deposited the prayer sticks of the priests at the Sumaikoli ceremony. The shrine, called a sun shrine, receives other offerings also, but that made to the sun by the Yaya priests is conspicuous. This priesthood makes offerings also to the moon, to Masauû, and to the six world "quarters"—north, west, south, east, above, and below. Such offerings consist of feathered strings, some of which are tied to an emblem representing the sun.

The Sumaikoli and Kawikoli masks of Hano are kept in a dark room on the ground floor of the old sun house of that pueblo. They differ somewhat in symbolism from those of Walpi.¹

Sun Shrine on Trail to Katcinaki.—Katcinaki, or the Katcina house, is a shallow cavern situated nearly under Sichomovi, halfway between the edge of the mesa and the surface of the terrace. This is the place where men personating the katchinas unmask and where they have their mid-day dinner. Here is a small shrine in which ceremonial deposits are placed at times. The trail leading to it from the mesa top passes over the east rim of the mesa about halfway between Walpi and Sichomovi and, after descending a few feet, bifurcates, one branch forming the main trail to Sun spring. Overlooking this trail as it leaves the mesa is a projecting spur of the mesa edge upon which is situated the Eastern Sun shrine of Walpi. This shrine, shown in the accompanying figure (pl. XXVII, fig. c), is filled with offerings at the Winter Solstice ceremony and is a receptacle for prayer sticks and feather offerings at other festivals also.

Talaviva.—This shrine is situated on the extreme point of the cliff above Wala, on the trail from the Isba to Hano. Near it are the markings in the edge of the cliff through which the Tewa formerly shot their arrows at invaders, in defence of their town. On the oc-

from a common source. Like the Zuñi Kolowissi and the Hopi Palülükon, both were derived from clans that once lived on the Little Colorado. In a somewhat similar way the concept of the Flute cultus hero in these two modern pueblos may have been independently derived from the people of some Flute pueblo now in ruins.

¹ See *Jour. Am. Ethnol. and Archæol.*, II; also, *American Anthropologist*, n. s., III, 1901.

casion of my visit the shrine contained several fragments of petrified logs but no prayer sticks or other offerings.

Moñiva.—This shrine is situated on the mesa top, north of the main cluster of Hano houses, and not far from the remains of an old kiva adjoining broken-down walls of an ancient habitation that the Hano ascribed to the Katsina clan. Offerings are made in this shrine, especially by the Hano priests and those personating the Hano katsinas.

Hano Sun Shrine.—It is in this shrine that the sun priest of Hano places his sun offerings at the summer solstice, as recorded in my account of this ceremony.¹

Ancient Hano Sun Shrine.—There is an old sun shrine of the Hano clans on the mound south of the trail that leads from the foothills to their ancient pueblo on Sikyaotcomo, or Yellow-rock mound. It is said that one of the earliest Hano settlements crowned this elevation and the adjacent remains of walls support the tradition that it was a pueblo of considerable size. The shrine on this hill is used almost exclusively by the modern Hano priests and always contains several offerings. It consists of a ring of stones a few feet in diameter, open on the east side. The character of the offerings varies from time to time. The following objects were observed just after the Winter Solstice ceremony in 1900. The most unusual form of these offerings, peculiar to Hano so far as I know, is a prayer stick in the form of an ancient ladder, which is elsewhere figured, and described as carried by the Buffalo maid in the Buffalo dance. This is a flat wooden slat serrated on each edge with each surface divided by a meridian band, one side yellow, the other green. One end is continued into a handle. The ladder prayer stick is used in the Winter Solstice ceremony in a symbolic way, being in fact an offering to the sun, which is supposed to be weary at that time and in need of assistance in climbing from his home in the under-world to the sky.

Two sun prayer sticks of Hano priesthoods were likewise seen in this shrine. These differ from the Walpi variety in having a ferrule incised in the stick representing the male, a face being painted on the stick representing the female. Both Hano and Walpi varie-

¹ *Jour. Am. Ethnol. and Archaeol.*, 11, 1893.

ties are double, consisting of two sticks tied together about mid-way in their length. One of the most remarkable offerings in this shrine was an imitation of an eagle's egg, made of wood. It was painted white with black spots and had a wish feather attached to it. These imitation eagle eggs are "signature" prayers for the increase of eagles and occur also in other sun shrines. They are made at the Winter Solstice ceremony.

Shrine of Ahūla.—Ahūla appears in the great Katsina ceremony called the Powamū, or yearly celebration of the return of the katsinas, or divinized ancestors. This personage, representing the Sky god or male parent of all, visits the main clan homes of the three villages on the mesa, symbolically receiving the prayers of their residents which he answers in a similar manner.

There is a conspicuous shrine situated at the gap, Wala, near the head of the trail from Coyote spring to Hano, which contains a coiled stone, possibly a cast of a cephalopod shell. Prayer offerings are placed in this shrine in many ceremonies; here Ahūl, the Sky god, dresses and dons his mask before he enters the Hopi pueblo. The coiled stone is not interpreted as representing a snake idol, as some authors have suggested, but as comparable with what the Hopi call, as translated, a "heart-twister."¹

Tohkūkū.—The shrine of the animal footprints is situated near the trail from Walla to the two mounds called Kūkūtcomo, "footprints mound." This shrine, a small cairn containing stone fragments and other objects, takes its name from certain depressions in the surface of the rock which the Hopi liken to wildcat tracks. Several similar markings on the rock nearby seem to indicate that the impressions especially associated with the shrine were but one specimen of many of these impressions to be found in the neighborhood. In this shrine was observed a wooden ball, which I was told had been placed there in order that the Rain gods might pour out water from the clouds in torrents which should fill all the dry water courses, causing the adobe balls in their beds to be rolled along

¹The nearest approach to it in form is the coiled stone from Awatobi now in the Berlin Museum, to which institution it was sold by the late Mr Thomas V. Keam. A coiled wooden object known as "the mother" and called also a "heart-twister" is prominent on the Walpi Mamrauti altar. (See *American Anthropologist*, III, 1892.)

like the stone balls which were kicked by the young men in the foot races held in early spring. These races are thus a form of prayer, or a mental suggestion to the Rain gods to aid their descendants with copious rains.

Kwapilikpu.— This shrine, situated on the north side of a hill called Tukinobi that lies about midway between the twin mounds Kükütcomo and Wala, is, as its name signifies, an eagle shrine; it contains artificial eagle eggs, especially just after the Winter Solstice ceremony. Near the shrine are the remains of a former settlement of the Kokyan, or Spider clan of the Bear people, the earliest arrival in Tusayan and a very old settlement on the East mesa.¹

SHRINES IN THE PLAZAS

Almost every Hopi pueblo has in the middle of its plaza a shrine that is generally one of the best made of these structures in the neighborhood. These plaza shrines are of two kinds: (1) those whose cavities are sunk below the level of the ground and always provided with a stone covering; and (2) those with lateral walls above the surface of the ground, having lateral entrances. Both types are sometimes said to represent symbolically a mythological opening from the under-world through which the races of men emerged. The plaza shrine of Walpi belongs to the former of these types, the corresponding shrines at Sichomovi and Hano to the latter.

A plaza shrine of the second type is a simple uncovered stone box made of slabs of rock set on one edge, generally with the east side open. Shrines of this kind are usually well supplied with prayer emblems of different sorts.

Sipapü is, of course, a general name for the entrance to the under-world, and is applied likewise to a symbolic representation of the same, as a hole in the floor of a ceremonial room or a depression in the plaza. The plaza shrine at Walpi is a sipapü, or crypt in the floor of the plaza, and is covered with a circular stone ordinarily

¹Like many of the oldest clans of the Hopi pueblos, the Spider clan is said to have come from the east. According to some of the most reliable traditionists, the Bear people are the oldest in Walpi. The evidence drawn from picture writing found on pottery taken from their old ruins relates them to former inhabitants of Sikyatki, whose ancestors we know came from Jemez.

cemented over the orifice. This stone covering is removed at certain ceremonies when offerings are deposited in the cavity. At the New Fire ceremony broad lines of meal are drawn on the ground from it across the plaza in the direction of the shrines of Talatumsi and other supernatural beings. These are either pathways of influence from shrines to the under-world, the abode of the gods, or vice versa.

WORLD QUARTER SHRINES

In certain of the great Hopi festivals, as the Snake dance and the Flute ceremony, but more especially in the former, it is customary for the priests to deposit prayer sticks for rain in temporary shrines situated in the four cardinal directions¹ from the pueblo. These sticks are made for seven consecutive days, their length each day being less than on the preceding day. The shrines in which the offerings are placed are situated at distances also diminishing day by day from the maximum—about five miles. On the last day prayer sticks no longer than the first joint of the finger are placed on the four sides of the entrance to the room in which the offerings are manufactured. These temporary world quarter shrines and the offerings placed in them are located at constantly diminishing intervals in order to toll the Rain gods from their distant homes to the pueblo.²

Snake Shrines.—In the now voluminous literature of the Hopi Snake dance, little or nothing has been recorded regarding the fate of the long black prayer sticks made by the Snake priests and carried by them in the dance. At the close of the dance these objects are deposited in four shrines situated at the base of the mesa, one in each of the four world quarters, and hence called the North, West, South, and East snake shrines. It may be mentioned also that in the disposition made of the snakes after the dance a serpent is always left in each of these shrines.

The Snake shrine of the North is situated near a large boulder, not far from a house owned by Kannu. At the time of my visit there were in this shrine several of the black prayer sticks of the priests. The Snake shrine of the West is a cleft in the pinnacle of

¹ Determined by solstitial sunrise and sunset, not by polar observations.

² Shrines may sometimes, as possibly in this instance, symbolically represent springs.

rock at the extreme south end of the East mesa, near the boulder on which is cut the pictograph of the winged being Kwataka, elsewhere described. The Snake shrine of the East is situated not far from the Buffalo shrine, to the right of the road as one approaches the spring called Ispa, Coyote Water. It is a simple cleft in the rock which bears one or two pictographs of serpents. The Snake shrine of the South is situated a little to the right of the steep trail to Walpi, just below the sheep corral on the terrace. Nearby are pictographs of snakes and when visited the shrine was found to contain several snake prayer sticks.

SHRINES WITH PICTOGRAPHS

It commonly happens that pictographs of striking character are found near shrines. None of these is more instructive than the pictograph of Kwataka, a mythic being of birdlike form. This being is regarded by the Hopi with great awe, for it is one of the most dreaded supernatural personages of the tribal Olympus and around it cluster many legends, some of which recount how it destroyed and devastated old pueblos. Some of the ruins of Arizona are directly associated with the effects of its rage. In certain respects Kwataka resembles the Zuñi *Achiyālātopa*, "the knife feathered being," figures of which are so constant on certain Zuñi altars but which I have never found on a Hopi altar. Kwataka was worshipped when success in war was desired, and offerings of medicine were placed in the depression indicating the location of the heart of this supernatural being. He was regarded as the most powerful god of war. There is a very good pictograph of Kwataka in the foothills at the south end of the East mesa, on the face of a large boulder. The accompanying drawing (figure 15) shows that the Hopi conception of him was a giant birdlike being with a long straight beak and a crest of feathers. Remarkable features not partaking of the birdlike character are the two appendages rising from the back and extending forward. These are said to represent baskets in which prey is placed, but were more probably designed for basketware shields to protect the god from his foes. The depressions in the surface of the rock near the position of the heart, where the war medicine was placed, are indicated in the illus-



HOPI SHRINES

J. Pictographs near snake shrine. K. Kato's shrine. L. Hopi grave with offerings.

tration. On approaching this pictograph, one may see on the rock footprints said to have been made by Tcavaiyo, another little-known monster of Hopi mythology. From several considerations I am

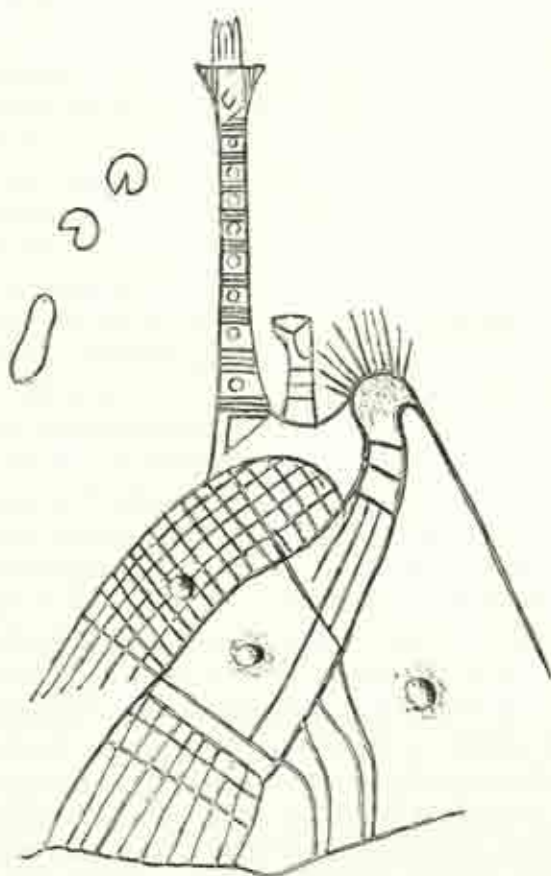


FIG. 15. — Pictograph of Kwataka.

led to regard Kwataka as an ancient Sky god, the rites of which have not yet been identified.

The Nakopan Shrine and Pictograph. — This shrine is situated about two miles north of the mounds of old Sikyatki and the accompanying pictograph commemorates one of the few folk tales that have come down to our time from that prehistoric village. In my paper on Hopi Katchinas will be found the story of the personages

concerned, with graphical representations of them, but no one has yet described the shrine. This consists of a shallow cave hollowed out of the cliff a few feet below the edge of the mesa, on the side

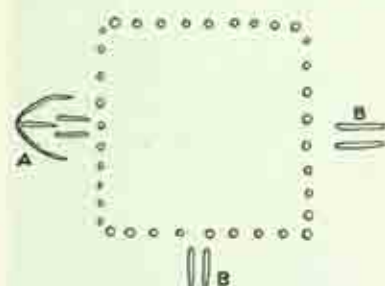


FIG. 16. — Pictograph of Nakopani.

looking toward Sikyatki; it contains two stones of unusual shape, called by the Hopi the two War gods. In front of these stones there were when I visited the place several rude clay vessels and prayer sticks. The pictograph of the Nakopan, cut on the surface of the cliff just above the shrine, consists of an incised figure of rectangular shape indicating where

the Nakopan personages were seated, the maid being a figure of the female organ as shown in the accompanying illustration.

The pictograph here dealt with (figure 16) is said to show where the children of the Sikyatki woman sat when she left them their food. It is about $2\frac{1}{2}$ feet square, the seat of the girl being represented by the female sign (*a*), and that of the boy by parallel lines (*b*). According to the myth, a Sikyatki mother was angry because her children begged for corn. They fled to the cave described above and the mother, who had entered into illicit relations with a man not their father, left food for them daily at this place.¹

Toho Pictograph. — This pictograph (pl. xxvii, fig. *i*), which occurs on the face of a large boulder situated on the terrace below Sichomovi, represents in incised outlines a mountain lion several feet long. The heart is indicated by a depression in which meal or other offerings may be placed, but they are placed also near the base of the rock. This boulder is situated not far from the site of the first trader's store² at the East mesa.

¹ Near this pictograph two Hopi men were killed by the Navaho in comparatively recent times.

² The earliest trader was a young Mexican, Roman Vaca, called by the Hopi Lomana, who brought his stock in old wooden-wheeled wagons over a road the signs of which are still to be seen. Vaca was succeeded by Mr William Keam, whom the Hopi call "Billee" and from whom Keams canyon takes its name. Mr William Keam was succeeded as trader by his brother, the late Thomas V. Keam.

VARIOUS OTHER SHRINES

Mucaiaski. — In this shrine — a cleft in the rocks to the right of the road leading from the plain to the mesa, about opposite the old Polakka house — an offering is deposited after a Buffalo dance. The place is only a few feet from the road and is somewhat hidden from the sight of passers-by. The offering is a notched stick with attached feathers; it is called the "sun ladder," a figure of which is published in an article on Hopi Minor Ceremonies, in a former volume of this journal.

The Buffalo dance was introduced into Walpi by Tanoan clans from the Rio Grande and was formerly celebrated with much fervor. The Hopi say that it was carried from Walpi to Zuñi¹ about 1886 and that they brought back in exchange for it the Howina, a Warrior or Harvest festival, which is occasionally celebrated on the East mesa.

Clowns' Shrines. — The Hopi, like the Zuñi, have an order of knob-headed personations called Koyimsi who appear in certain of their ceremonial dances. These are commonly called clowns and represent ancestral beings that once lived at a pueblo (now a ruin), Winema, not far from the junction of the Little Colorado and Zuñi rivers. Although these beings have the same name at Zuñi and Walpi, it is not necessarily true that one order was derived from the other. It is more probable that both came from a single source — one of the ruined pueblos of the Little Colorado.²

The shrine of the Koyimsi is situated near a great rock on a sandy hillock to the right of the road from Tawapa to Supela's house. It is a ring of small stones with an opening looking eastward.

There survives on the East mesa a persistent tradition that when the mission at Walpi was destroyed in 1680, the altar images, or "santos," were hidden in the sand near this shrine, but exactly where no one now knows, although all the old men agree that the burial site was not far from Sun spring.

Hütciohi. — As the visitor approaches Walpi from the north the mesa narrows and descends a few steps, to rise again as one enters

¹ The Pleasure dance figured by Mrs Stevenson (pl. LXXXI, *Twenty-third Rep. Bur. Am. Ethnol.*) is a Buffalo dance introduced by the Hopi.

² The Koyimsi cult at Zuñi dates back to the earliest times of which the tribal traditions speak. It is old at Walpi also, where it was introduced by clans from the south.

the pueblo. This constriction of the mesa has caused the trail to narrow and the worn surface of the rock shows clearly the marks of the many footsteps that daily pass over it. On one side of the narrowed trail (pl. xxvii, fig. *f*) is a small overhanging ledge of rocks under which one can generally find prayer sticks and other offerings. This is a favorite place for the prayer offerings of the Warrior society, who perform similar devotions at Momtcita, their ceremony occurring in December. On the trail at this point is commonly placed a string to which is tied a feather; the two are called a "road" and are used as symbols indicating that a ceremony is about to begin¹ or is in progress in the pueblo. The trail is then said symbolically to be open, whereas when the string is laid across it, the trail is ceremonially closed.

Atutuskia.—This shrine is situated near Syskiamu's house, to the right of the road in foothills east of the mesa.

Niman Katsina Shrine.—This important shrine is situated near the southern end of the mesa on the east side just below the level of the terrace. It is inclosed by a number of flat stones set on edge, forming the sides, and covered by a thin slab of rock. This covering is removed in July at the celebration of the Niman Katsina, when offerings are placed in the shrine as has been described elsewhere.² The Niman celebrates the departure of ancestral gods called katsinas, who are supposed to live in the under-world, the entrance to which is the sun house in the west. The shrine here described is symbolic of that abode.

Katalini.—This shrine, which is situated on the mesa top, half-way between Hano and Sichomovi, is a simple uncovered circle of stones, without contents. Novices are said to make their offerings here at the time of the New Fire ceremony.

Tuhpaka.—A small simple shrine to be found on the east edge of the mesa near Sichomovi.

Hombiki.—This shrine is situated in front of Tebewysi's house in Sichomovi. Novices of the priesthoods called Tataukyamù,

¹ The speaker-chief generally places a stringed feather at this place after he has publicly announced a ceremony.

² *Jour. Am. Archaeol. and Ethnol.*, 11, 1892.

Wüwütcimtû, and Kwakwantû are said to make offerings in this shrine at the New Fire ceremony.

Talatinka. — This is the sun shrine of Walpi in which offerings are placed at the Winter Solstice and at other ceremonies of the Sun priests. The novices of the Kwakwantû likewise are said to make offerings here at the New Fire ceremonies. The site of these devotions is about halfway between Walpi and Sichomovi, on the east rim of the mesa, above the trail. A Navaho home formerly stood not far distant. At the Winter Solstice ceremony this shrine is generally filled with prayer sticks, some double, others curved at one end, the latter being offerings of certain societies introduced by Patki and other southern clans.

Tuwanacabi. — This shrine, bearing the same name as the traditional pueblo¹ west of Oraibi, where the Badger people lived when the katchinas emerged from the under-world, is very sacred to the Walpians. It is situated in the foothills due south of the end of the mesa. In form this shrine is simple—a circle of stones with the opening facing the east, having on the west side the large rock so common in Hopi simple shrines. There is no idol or other sacred image here, but prayer offerings are rarely wanting. Offerings of the following kind were observed there just after the celebration of the Flute ceremony in the winter of 1900.

The most important of these were two prayer sticks dedicated to Cotokinuñwû, a sky supernatural, introduced into Walpi by the Flute and Patki families, who formerly lived near the Little Colorado, south of Walpi. It appears from tradition and from a study of ceremonials that the Hopi conception of Cotokinuñwû was the highest ideal of a Sky god attained by the development of their own religion; when they learned of monotheism from Christian missionaries, they immediately identified the latter's deity with their own greatest god. The offerings made as prayers to this being are occasionally called by the Hopi, when speaking to white people, "Jesus pahos."

¹ The custom of naming kivas or shrines after ruins is not uncommon among the Hopi. Thus Moñkiva was formerly called Pakatcomo, from the ruin of that name marking the place where the Patki once lived. There was also at one time a kiva on the East mesa called Homolobi for a similar reason.

The best idol of Cotokinuñwû known to me is that on the altar of the Flute priesthood at Oraibi. It apparently represents a bird-snake concept, the head having a curved apical extension, reminding one of some of the Mexican pictures of Quetzalcoatl. Its wings are conventionally made and the two long legs are decorated with the zigzag lightning symbols of the Plumed Serpent. Certain of the characteristics of the same Serpent god, as rain-bringing and thunder-making, suggest the attributal name Thunder Bird or God of Thunder applied to this being, but the image is rather that of the horned than of a feathered serpent god; the cult of the latter, it will be remembered, reached a complicated development in southern and eastern Mexico.

The idol of Cotokinuñwû on one of the altars of the Flute fraternity of Oraibi gives an excellent idea of the Hopi concept of this bird-snake supernatural, and we have also good material in the paraphernalia and idols of the Patki clans from which to study his variant. In this case, as shown by the effigies of the Plumed Serpent employed in the Winter Solstice, the snake element predominates, but there is still found the survival of the bird element and the Sky god conception. The Kwakwantû, a warrior brotherhood of these clans, wear helmets with the curved horns characteristic of Cotokinuñwû¹ and carry in their hands wooden slats curved in the form of small plumed serpents.

The offerings of the Flute chief to Cotokinuñwû are made in the Tuwanacabi shrine and are flat double prayer sticks tied side by side, each with a face painted on one end, and pointed at the other. Each stick has a packet of meal and a feather tied about midway of its length. In addition to the offerings to the God of the Sky there were noticed in this shrine many green prayer sticks. These were about the length of the finger and were deposited by the Flute priests to bring rain. The numerous other prayer sticks of this kind that occur in this shrine are offerings of former years.

There was also in the same shrine a small prayer stick made of two parts tied together. Both of the components were without facet but one was painted yellow and the other green. This was

¹ The Plumed Snake symbols in this idol are indicated elsewhere. The curved horn of Cotokinuñwû recalls that on some images of Quetzalcoatl.

an offering of Naka, the chief of the Kacina clan, to his ancestral gods. The shrine contained also numerous single sticks painted black, placed there by the Snake priesthood.

Lalakon Shrine.—When in their wanderings from the south the Patki people arrived in the valley now called the Walpi wash, they were invited to exhibit to the Walpians their magic power in causing rain and lightning. This exhibition took place near the spring Tawapa which, on that account, became sacred to them. Two societies of priests, called the Lakone sorority and the Kwakwantu fraternity, were introduced into Walpi at that time. Both of these priesthoods have shrines at or near Tawapa.

Sowinakabu.—The Rabbit-car shrine is situated just below the terrace at the side of the trail from Walpi to Tawapa.

Uñatanopi.—This is the shrine that contains or covers the heart of the mythic Hawk (Kica), and in this connection the following story is repeated: In prehistoric times Kica (Hawk) and Teübio (Deer) tested their powers by running a race.¹ Hawk was very fleet, but Deer prayed for rain, which fell in torrents and drenched Hawk's wings so that he flew with difficulty and but slowly. Hawk lost the race and Teübio slew him, cutting out his heart and burying it in this place. As Hawk expired, he murmured that all youths who should pray at the shrine where his heart is buried should be fleet of foot. Hence foot racers often deposit their offerings at Uñatanopi.

Talaviva.—This shrine is situated on the north end of the mesa, back of Hano and just above the gap. Near it are the grooves where the warriors rested their arrows when they shot at the Utes or other hostiles coming up the trail. The shrine contains a few fossil logs or fragments of silicified wood.

Mohiva.—This devotional spot is situated just north of the main building at Hano and, like the shrine at the gap, contains a coiled stone. When visited, many Hano prayer sticks (*o'dope*) and feathered strings (*pelateiye*) were found.

Sheep Shrines.—In almost every Hopi sheep corral there is a place where clay images of the animal are placed as prayers for the

¹ The idea of testing the relative power of magic forces by racing is truly aboriginal.

increase of domestic animals. These images are commonly made in the Winter Solstice ceremony and in the Warrior festival that follows it. During the former celebration prayers are made to Mu-yinwû for the increase of everything the Hopi desire, and at that time wish or prayer feathers are tied to peach trees, wagons, legs of chickens, tails of horses and burros, and to every other possession of the Hopi. Like prayer offerings are placed in all the shrines and at every spring.

The sheep shrines lie on the east or sunny side of the mesa, about halfway from the terrace to the rim, and were placed at that point as a protection against coyotes and marauding Indians. Of late other corrals have been constructed on the terrace, which offers a larger space than the talus of the mesa.

SPRINGS AS SHRINES

In a general way every spring is supposed to be sacred and therefore a place for the deposit of prayer sticks and other offerings. Some of these springs, as Tawapa and Moñwiba, are supposed to be specially consecrated to the Great Serpent or Sun, others to some lower divinity, but every spring is a place of worship and hence a shrine. There are many springs near the East mesa, some of which still flow; others have been filled with drifting sand and, although no longer yielding water, are still places where offerings are made. It requires constant diligence to keep the springs from filling with sand, and from time to time, under direction of the village chief, the male population dig out the sand that has drifted into them.

Near distant ruins are likewise traditional springs from which water is obtained for use in certain rites or ceremonial proceedings. When water is thus obtained, prayer offerings are customarily deposited. While the majority of springs are dedicated simply to the Rain gods, a few are special homes of a Germ god, the Sun, or the Plumed Serpent, or all combined.

Some of the largest springs are believed to be inhabited by supernatural beings. The Great Plumed Snake is supposed to live under the Sun spring and offerings to him are made at that place.¹

¹ Springs are often regarded as homes of the gods and sometimes as entrances to the under-world, where divinized personages dwell, or as windows out of which they look.

In the Flute ceremony a prayer stick is biennially deposited with ceremony in the bed of the same spring by a man who sinks under the water for that purpose. Water from sacred springs, especially those associated with early migrations, is deemed most efficacious in medicine making. Several springs are supposed to have been miraculously formed by early chiefs, who on that account have come to be regarded as supernatural personages.

Ispa.—This spring is situated near the main trail from the plain to the gap, Wala, and lies just above the neighboring peach trees. It has a heavy flow and is capable of supplying the water for all the three villages as well as for the houses clustered about it. A large number of prayer sticks are always to be found below an overhanging roof in the rear of this spring at the edge of the water.

Unpa.—This spring, now filled with drifted sand, is on the south side of the hill called Sikyaowatcomo, the site of an early settlement of the Hano. Although now no longer used, offerings are sometimes placed in the sand above the spring, thus keeping up an old practice. Except from this custom and from traditions, no one would know that there ever was a spring at this place.

Wipo, which lies on the west side of the East mesa, a short distance north of Kanelba, is one of the finest springs in the Hopi country. It is a place of offering for several societies, among the most important of which is the Flute. There are terraced gardens and evidences of house walls near this spring, indicating a considerable ancient population in the neighborhood.

Winpa.—Site of a spring a few miles north of Sikyatki, near a ruin once occupied by the Katsina people. This spring, once strong, is now dry and filled with sand. Its walls are made of well-dressed stone laid in circular form. Near this spring are walls of an old pueblo of small size.

Kwastapa.—This is one of the springs on the west side of the East mesa at which the Flute and other fraternities deposit their offerings. Like Wipo and Kanelba, it was a halting-place in the migrations of the Flute clans and is supposed to be of mythic origin.

Kahabipa.—This water, labeled on our maps Comar spring, takes its name from Koma, a Hopi who is said to have once had a house near it.

Kahabiobi. — Little is known of this spring except that it is near the one just described or between it and the Hopi butte.

Sipi. — This spring is not far from the Hopi butte (Custapoñtukwi) and is visited by the chiefs of the Kwakwantû for water used in the New Fire ceremony and the Winter Solstice ceremony. To it novices of this fraternity are sent in their initiation ceremonies. The Patki and other southern peoples stopped at this spring in their migration northward from Homolobi or the settlements along the Little Colorado.

Cakwaskpa. — A small spring near the Giant's Chair.

Hutchimopa. — A feeble spring in the plain below Walpi. There is another spring of the same name not far from Sikyatki.

Moñwiba. — This large spring, situated near the trail leading from the plain to Hano, on the right hand side, is dedicated to the Hano Plumed Serpent, Avaiyo. It is one of the few large walled springs with a pathway leading down to the water. Moñwiba was dug out within a few years; at the time a festival was held, the workmen personating the Snow Katsina wearing masks on which were depicted the heads of plumed serpents. In the March dramatization, exercises are performed at this spring with the effigies of the Great Serpent of Hano. Tawapa is the home of the Walpi Plumed Snake; Moñwiba, of that of the Hano.

Anipa. — A small spring used by farmers and others, but situated far from the pueblos and consequently available only occasionally for drinking purposes.

Sikyatki. — This is the old spring of the ancient Sikyatki, the Kokop pueblo, from which the former inhabitants of that town obtained their drinking water. At present the water is not potable but offerings are still placed on the edges of the spring by the chief of the Kokop clan.

Tawapa. — The great Walpi Sun spring, situated at the foot of the mesa, east of Sichomovi. When I first visited it, in 1890, there was not a single house in the neighborhood and the surroundings were in a perfectly natural condition. Lately, the day school was built near Tawapa and the name of the latter was changed. Tawapa is supposed to be the home of the Plumed Serpent, and the Lalakontû, Kwakwantû, and Flute priesthoods use water from it in

certain ceremonies. The Patki family are said to have camped near it after they left Pakatcomo, their last pueblo before reaching Walpi, and here they performed the rites that caused the mist to come and produced the lightning that so frightened the women of Walpi. Tawapa is much revered by the Flute people also, who, like the Patki, came from the south, and here they perform biennially one of their most impressive ceremonies, in the course of which their chief sinks under the water and there deposits prayer sticks.¹

Tatacpa.—This spring lies near the coffin-shaped butte in full sight southeast of Walpi.

Nunupa.—This spring is situated at the entrance to Keams canyon, on the right hand side. It yields an abundant supply of water, the flow having been much augmented by the care bestowed on the spring.

Tovovepa.—This good spring also is situated at the entrance to Keams canyon.

Other Springs.—In addition to the places of prayer above mentioned, the Hopi deposit prayer objects at the following springs: Kanciba, Hokonaba, Muzriba, Pehuba, Wukokoba, Honaupa, Pisaba, Anwucba, Yoyainiba, Yapa, Kokyanba, Tubuskia, Anapulaba, Yohopa, Takaplapi, Pepsiba, and the four springs near old Awatobi called Leñoba, Tetuiba, Pisaba, and Teüba. The foregoing list shows that the East mesa Hopi have many springs, and that the duty of supplying the water with prayer offerings accounts for the activity of the people in making offerings.

If we accept the broad definition of a shrine as a place of worship, naturally such rooms as kivas should not be omitted. For obvious reasons these are not included in this account.

I cannot pass by certain sacred places especially revered by particular clans, a typical example of which was called to my attention by the governor of Walpi about six months after the great smallpox epidemic in 1899. During my work at Walpi in 1900, Hani told me one evening that the inhabitants of the East mesa were much troubled because the mythic Badger had emerged from the under-world and was digging up the graves of those who had

¹ *Jour. Am. Ethnol. and Archeol.*, 11. It is claimed by some of the Hopi that these southern clans introduced into Walpi the custom of making prayer sticks.

died of smallpox the preceding year. Hani declared also that the stone that usually covered the shrine of Badger had been removed to allow the inmate to leave his home in the under-world.¹ It was then discovered that some shrines were practically symbols of the entrance to the under-world realm of the dead, and regarded in the same way as springs or kivas.

TRAPS MISTAKEN FOR SHRINES

Among several constructions in or near Hopi pueblos, ancient and modern, that have been mistaken for shrines, may be mentioned coyote pitfalls and rabbit traps; one of the former, from near Sikyatki, is figured in the accompanying illustration (pl. xxvi, fig. c). As here shown the construction consists of three flat stones set upright on edge, forming a box with one side and the top open. The missing side gives entrance to the trap and the upper stone is seen through the opening. When the trap is set, this upper stone is weighted, and propped up with a stick to which is attached a piece of meat or a rabbit, and the coyote in pulling out the prop causes this stone to fall on its head. Similar traps occur about ancient ruins and have sometimes been mistaken for shrines.

CONCLUSION

It is not intended to consider in the preceding pages all shrines and springs about the East mesa, but rather to show the importance of many of them in the study of Hopi archeology. Ownership in shrines and springs, like that in eagles' nests, is hereditary in clans among the Hopi. The right to a spring is one of the most ancient of all ownerships in realty. So sacred are these places to the Hopi that they are associated with tribal gods and clan tutelaries; consequently, proprietorship in them is not abandoned even when the clans in their migrations seek new building sites.

It is desirable that those engaged in the study of Southwestern archeology should pay particular attention to the shrines in the immediate neighborhood of ruins, and, where possible, gather all

¹ Nothing would induce Hani to accompany me to this shrine, or sipapu, of Badger. I have never seen it, but have had it described by several Hopi whose descriptions recall the katchina shrine used in the Niman.

significant information regarding their use in modern times or since the ruins were deserted. This knowledge, taken in connection with legends of migrations, will aid in an identification of clan affiliations of former inhabitants of our Southwestern ruins. Although in most instances these shrines are now little more than rings of stones, occasionally an offering is found in them that reveals the presence of reverence in some mind, and it is generally true that the one who made this offering is related in some way to former inhabitants of the neighboring pueblo.

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BOOK REVIEWS

A History of the United States and its People, from their Earliest Records to the Present Time. By ELROY MCKENDREE AVERY. In fifteen volumes. Cleveland: The Burrows Brothers Company. Volume I, 1904, pp. xxxvi, 498; Volume II, 1905, pp. xxxvi, 458. Maps and numerous illustrations. Cloth, $6\frac{1}{2} \times 10$ in.

Two volumes of Avery's History of the United States have now been received, from which we may judge of the scope and method of treatment of this monumental work, which aims to give in concise and readable style a history of this country from the geologic shaping of the territory to the present day, without the burden of footnotes, but with ample bibliographic citation of authorities for every chapter. In explanation of his system the author states in his preface that, recognizing that the needs of the public are different from those of the professed student, he felt sure that the general public would approve an avoidance of "abysmal notes, overladen with trivial details," and says: "I thought that it was possible to write so that what was written would be actually read and easily understood, and still to avoid falling into the quicksands of blunders, partisanship, and curious delusions."

The opening chapter of Volume I deals with the Ice age and the vexed question of Glacial man in America. While the author is careful to give both sides and seldom commits himself to definite pronouncement, the general tone favors the claim for Glacial man. In our opinion the controversy is more equally balanced. Only one of the noted Trenton finds belongs unquestionably to the Glacial strata, while neither the Calaveras nor the Lansing human remains shows evidence of extreme age or marked variation from the modern type such as we find in comparing the human remains of Neanderthal, Spy, or Cro-Magnon with those of the historic European races. The Glacial American is still a theory.

The chapter on the neolithic Americans is an excellent summary of the results of archeological investigations by experts of the Bureau of American Ethnology and other workers, notably Mr Clarence B. Moore in the Southern states. In regard to the clan organization noted on page 30, it is in place to mention that this system, considered by Morgan and his disciples to be fundamental and universal, is now known to have pre-

vailed within only a limited area, being almost entirely absent from western United States north of the Navaho country, as well as throughout much of the great Canadian interior. The importance of interpreting ancient artifacts by comparison with implements and methods of the present day Indians is emphasized. Archeologists have sometimes regarded their specialty as a thing apart. The statement that no vitreous glazing was produced on pottery except by accident needs modification in the light of numerous recent discoveries in the Pueblo region beginning with Bandelier in 1892 (*Final Report*, in *Archæol. Inst. Papers*, vol. iv).

The chapter on "Maze and Myth" discusses the pre-Norse discoveries claimed for Chinese, Irish, Welsh, Arabs, and others. The Irish claim does not rest, as would appear from the wording of the paragraph on page 65, on Irish authority alone, but largely on the Scandinavian chronicle of Iceland, the *Landnama-bok* and the most ancient Scandinavian sagas. It is definitely known, as noted by Humboldt sixty years ago, that Irish monks were established in Iceland as early at least as the year 795, preceding the Norse by nearly a century, while the story of a Christian Irish colony on the mainland coast of America, based on the reports of shipwrecked Norse voyagers from Iceland, was so firmly believed in the tenth century that the unknown western land was known in the sagas as "Great Ireland." The earlier story of St Brendan's voyages is more or less mythic, and no recognized historian claims that Patrick was ever in America. The subject is discussed at length in De Costa's *Pre-Columbian Discovery of America*. The early Scandinavian colony in Greenland was exterminated by the savages and disappeared from history after a prosperous existence of more than three centuries. The same fate may have overwhelmed other and earlier colonizations before clans and provinces were welded into nations.

For some reason not apparent, the chapter on "Columbus and His Great Idea" is written in a spirit of hostility to the discoverer, following Winsor, who accuses him, either directly or by implication, of nearly every meanness and crime in the calendar except murder. Notwithstanding this, it will be difficult to persuade the student that Columbus was other than what the world's verdict has long since conceded — a sincerely good man, of noble impulse, lofty ideal, and infinite patience, to whose overmastering intellect the world owes the greatest debt of the century. When we read on page 143 that the journal of Columbus while cruising about the islands is full of hope that with God's help he might find gold, but "not a word now of the conversion of the heathen," we are not prepared to find on the next page a quotation from the same journal in which

the discoverer proposes to master the language of the Indians in order to "learn the riches of the country and make endeavors to convert these people to our religion." The characterization of the successful outcome of the voyage as a "triumph over the sneers of monks and scoffs of sages" seems rather gratuitous in view of the fact that during the long period of waiting and discouragement Columbus and his sons found shelter, food, and sympathy in the Franciscan monastery of La Rabida, and that the successful interview with the Spanish Queen was brought about by the devoted and untiring effort of the prior of the same monastery (pp. 124, 128). The chapter on "Columbus' Fourth Voyage" was evidently drawn from other sources, judging from the eloquent eulogy at its close.

Several chapters are devoted to the later Spanish explorations and conquests, and we are reminded, from Gomara (p. 230), that many voyages were made by various navigators in the first years after the discovery, which were afterward forgotten, as their only result was the impoverishment of their projectors. There can be no doubt that some of the early charts about which there is controversy, as the Cantino map, may embody information obtained by now unknown discoverers. A royal commission may give the stamp of authority, but it is no proof of priority. The traces of Spanish occupancy in Florida, noted on page 266, do not date from León's time, but from the actual settlement period subsequent to 1565. The great work of Las Casas in securing protection for the Indians against the barbarous treatment of the first adventurers receives full credit. It is well to remember that the cruelties of Balboa, Cortés, Nuño de Guzman, and De Soto were perpetrated within the first half century of the discovery, before administrative methods could be either formulated or enforced. Even before the close of this period schools had been established for the education of Indian youth, and missionaries were introducing the arts of civilization among the natives. In 1542 concurrent proclamation by the Pope and the Emperor provided for gradual emancipation of Indian slaves throughout Spanish America, and prohibited the further enslavement of Indians on any pretext whatsoever. For the eastern part of De Soto's route the Nineteenth Report of the Bureau of American Ethnology is taken as authority. The correct date for the founding of Santa Fé (p. 301) is 1605 (Bandelier, Hodge).

The work of Spanish colonization in the United States, both east and west, needs more ample treatment than it receives in the first two volumes. The conquest and settlement of New Mexico, after Coronado, the great Pueblo revolt, the final reconquest, are noted in only a few brief lines in

the first volume and not at all in the second, which deals entirely with the eastern sections and comes down to 1660. The colonization of Florida, the establishment of the Apalachee and Timucua missions, the building of roads and planting of orange groves, the opening of mines in the foot-hills of the Alleghenies, and the important Indian fishing trade between Florida and Havana, are not noted beyond the single reference to the founding of St Augustine. It may be that these things are reserved for a later volume. If not, the omission should be supplied from the Spanish historians or from Bandelier, Shea, Lowery, and Hubert Bancroft. The work of Spain as the pioneer of civilization in the United States is not yet appreciated.

The chapter on Indians is brought up nearly to the date of publication. Further linguistic investigation within the last three years has somewhat reduced the number of distinct stocks and proven the former existence on the southern Florida coast of an Arawakan colony from the neighboring Antilles. The appendix chapter on Indian relations, with table of tribes and reservations, contains much valuable information in small compass. The conclusion of Thwaites that the Indian population of the United States to-day is approximately what it was in 1600 cannot stand. There has been a great diminution, as is shown in the "Indian" chapter, pp. 341-2. According to the best expert testimony, California alone a century ago contained almost if not quite as many Indians as exist now in the whole United States.

Volume II deals with the colonial period from 1600 to 1660, including the founding of Canada or New France, Virginia, New York, New England, New Sweden or Delaware, New Jersey, and Maryland. As explanatory of a part of this colonization the author goes into detail concerning the religious struggle in England from the time of Henry VIII to the Restoration, including the secession of the Puritans from the Established Church and the persecution of the Catholics under both, leading on the one hand to drastic penal laws in Massachusetts and on the other to generous toleration in Maryland.

The chapter on "The Evolution of a Colonial System" is of special value as defining the methods by which new nations were developed beyond sea, while the chapter on "Annexation and Confederation" shows how the principle of individualism, which was the ruling passion of the immigrants, led ultimately and logically to a united republic. "The migrations from the old world to the new differed largely from those that had changed the character of European society in that they were individual rather than tribal. Having been led across the ocean by the

common love of liberty, Catholic and Protestant, Churchman and Puritan alike, they left old political forms in the old places, and applied their cherished principles in a way and to an extent peculiar to themselves. Students have devoted much time and learning to tracing the germs of some of our institutions back into the depths of ancient German forests, but the truth still stands that the ideas and institutions that characterize the nation are essentially peculiar to the nation." In other words, America is of the Americans.

The New Netherlands colony receives due attention, and we are reminded that until very recently our historians generally have based their statements, either directly or indirectly, on writers antagonistic to the Dutch settlement and ignorant of the language in which its records were written. The beneficent spirit of the Maryland colony as established by Lord Baltimore is clearly brought out. Notwithstanding his patent from royalty, which precluded all other claimants, the governor bought the lands from the Indians themselves, "thus anticipating by fifty years the policy of William Penn." Also, "from the beginning religious toleration of all Christian creeds was proclaimed and practised." Later on this principle of toleration was confirmed by definite statute drawn up by Lord Baltimore himself and passed by the Colonial assembly without amendment. "Thus for the first time in the history of the world did a legally constituted legislature enact religious liberty — for Christians." In spite of its discrimination against non-Christians, "the act was so liberal for that day that, in our day, it is difficult to appreciate it fully. . . . If any Protestant would carp because there were mists and exhalations that obscured what Bancroft has called the morning star of religious freedom, let him remember that within the preceding year a Puritan parliament in England had passed an ordinance imposing death as the penalty for 'maintaining with obstinacy' any one of eight enumerated heresies. In Maryland the promised toleration was everywhere continued and the prescribed penalties were never inflicted." All this in Maryland while the Puritan exiles in Massachusetts were banishing Roger Williams into the wilderness for preaching toleration, cutting off the ears and boring the tongues of Quakers, hanging men and women for religious opinions, and selling their children into West Indian slavery, as we find in the chapter on "The Puritan and the Heretic."

Of course these things are well known to students of American history, but the facts are not always accessible to the general reader and have seldom been presented with such clearness of statement and wealth of reference.

Some of the old traditional idols are shattered, though still with reluctant hand. The ten thousand—or is it fifty thousand?—descendants of the Mayflower will be somewhat surprised to learn from the roster that the number of adult passengers in that celebrated vessel who survived the winter was only twenty-six, all told, including sailors and a servant boy. The still more numerous descendants of Pocahontas will rejoice to know that the romantic story of Smith's rescue "has not been absolutely disproved."

The author's style is clear and concise, without long argument or dissertation, for all of which the reader is referred to the ample classified bibliography at the end of the volume. At the same time, any substantial difference of opinion is always plainly stated. The tables of contemporary rulers and of colonial governors add much to the understanding of the narrative. The numerous illustrations—portraits, autographs, facsimile titles, views, and maps—all are carefully chosen and finely executed, and the prefatory list is really a critical and historical catalog. In matter and arrangement the work is the best history of the United States that has yet appeared, while from the book-maker's standpoint the beautiful volumes are an equal credit to the Matthews-Northrup press and the Burrows Publishing House. The complete history as outlined will make fifteen octavo volumes of about 500 pages each, with such an index as the same publishers have given to the *Jesuit Relations*, and will be brought down to 1902.

JAMES MOONEY.

Anthropophyteia: Jahrbücher für Folkloristische Erhebungen und Forschungen zur Entwicklungsgeschichte der geschlechtlichen Moral, etc. Herausgegeben von DR FRIEDRICH S. KRAUSS. II Band. Leipzig: Deutsche Verlagsactiengesellschaft, 1905. Sm. 4°, xvi, 480 pp.

The second volume of the great work on sexual folklore, by Dr Krauss of Vienna, is at hand. It is issued with the collaboration of a number of distinguished scholars and includes the whole range of custom, story, proverb, riddle, charm, and song bearing on the subject as found in Vienna, Berlin, and the South German provinces, Servia, Hungary, Elsass, Sicily, and among the Gipsies. Original texts are given in German, including dialectic forms, Servian, Magyar, and Italian, with glossaries of special terms not known to dictionaries. While it is obviously impossible to particularize, it may be said that the work gives proof of a degree of beastliness still existing in the daily life of whole European communities hardly to be matched even among the Australian savages. Most of this, of course, is under the surface, but in many sections it is

an ordinary feature of national custom, as in Hungary, where young men and women dance together to the words of improvised obscene songs, while their elders look on approvingly. As usual the most sacred things are held up to filthiest ridicule. As the reviewer has already had occasion to remark in connection with the first volume (*American Anthropologist*, 1905, VII, 127), it might be well for our statesmen to know enough of this work to ask themselves seriously how much of such material they care to incorporate into our American civilization and citizenship. As a contribution to dialect study the volume has a special value.

JAMES MOONEY.

Bibliothek auserwählter serbischer Meisterwerke, mit literarhistorischen Einleitungen. Herausgegeben von DR FRIEDRICH S. KRAUSS. Leipzig: Deutsche Verlagsactiengesellschaft. 1906.

Band V — *Die Blume von Cannosa — Mater Dolorosa: Zwei Novellen von VID VULETIČ VUKASOVIČ.* Band VI — *Liebe und Leben im Herzogland — Zwölf Erzählungen von SVETOZAR ČOROVIČ.*

Two more booklets of the series of Servian masterworks, translated into German and edited by Dr Krauss, have appeared from the Leipzig press. Volume V contains two short stories by Vuletič, one of the younger generation of Servian writers, born near Ragusa in 1853 of parents who had emigrated from Herzegovina. The greater part of his active life has been spent as a teacher in the higher schools of Ragusa, his leisure hours being devoted to authorship, usually under a *nom de plume*, and to the study of Servian and Dalmatian antiquities and folklore, in which he is a recognized authority. As a story-teller his style is simple and of the people, and his analysis of womanly character is especially delicate.

In the eleven short sketches of Volume VI the Doctor introduces for the first time to Western readers a young writer who he predicts will yet be known as one of the greatest literary geniuses not alone of Servia but of the Slavic race. In speaking of Servian things it should be noted that only about one-sixth of the 7,000,000 people who use the Servian language are in Servia proper, the remainder constituting a more or less important element in the adjoining provinces of the Balkan region, the chronic unrest in that quarter being largely due to the effort of the dismembered national fragments to come together. Čorovic himself was born in Herzegovina barely thirty years ago and began his literary career when only fourteen years of age. At twenty he founded in Mostar a journal for the express purpose of building up a national Servian literature, with

such success that from the Adriatic to the lower Danube *The Daybreak* is now regarded as the exponent of a common heritage. The frontispiece portraits are indicative of intellectual breadth and vigor.

JAMES MOONEY.

Berittene Infanterie in China und andere Feldzugs-Erinnerungen. Von GEORG FRIEDERICI, *Hauptmann a. D.* Mit 70 Abbildungen im Text und einer Karte. Berlin: Dietrich Reimer (Ernst Vohsen), 1904. 8°, 355 pp.

This work deals with the writer's experiences as captain of a company of German mounted infantry in China during the Boxer uprising in 1900-01, and is altogether one of the most interesting and instructive books on China that have appeared in a long time. The writer is a master of English and is well acquainted with America, having traveled extensively in the United States and Mexico and having resided for a time in Washington, and, as former Lieutenant Friederici, is already known for his study of our Indian policy under the title of "Indians and Anglo-Americans." He is also an authority on Indian things generally, and an acknowledged expert on the subject of mounted infantry from the earliest period. Spurred on by the double love of soldier's adventure and scientific observation, he was one of those to respond to the Kaiser's call of "volunteers to the front" for the rescue of the imperiled legations.

The opening chapter deals with the mobilization, the embarkment, and the long voyage around the coast of France and Portugal, through the straits, and along the Mediterranean to Port Said and the Suez canal, down the Red sea and by the Indian ocean to Singapore, the world's "museum of races," and on to Ta-ku, the landing port for Tientsin and Peking. The author shows himself familiar with the history of every point of interest along the route. The combination of home spirit and practical method so characteristic of the German even when he goes soldiering is manifested by the organization of singing clubs and language classes almost before the ship is well under way, the celebration of every birthday, and later the detail of men from winter quarters at Yangtsun to procure a suitable Christmas tree. The barracks canteen — whisper it softly! — had three large orchestral instruments. The company mascots ranged from "Prince Tuan," a donkey, and Li Hung Chang, a billy-goat, down to geese and ducks. A pleasant feature was the friendly feeling shown toward one another by the troops of the different allied nations, particularly the warm comradeship established between the Germans and the French.

But there is another side to the shield. We get glimpses of the meaning of war when we read of the desolated cities, the people shot down when they chanced to come too near the pickets, the village fired when the villagers were not prompt with the war indemnity demanded, and the troops of homeless dogs which "were very useful to clear the country of corpses." We learn that the loud explosions from the burning houses came not from ammunition hidden by the Boxers, but were caused by the bursting of the bamboo supports. Later on we are told that the work of identifying the slain German soldiers for burial by their comrades was very difficult, as nearly every body had been so mutilated as to be unrecognizable.

In regard to "lüt" and the general disregard for the rules of civilized warfare by white troops when dealing with people of another race and culture, the author claims that these things are universal and inevitable under such circumstances, and that no one of the allies can claim superior merit in this respect. He has something to say about our own Chivington massacre and negro lynchings, and makes sly reference to a certain notable ball once given by the Chinese minister in Washington, where guests who had intruded without invitation, after having eaten and drunk to satiety, proceeded to carry off everything portable as souvenirs of the happy occasion, even to the fur coats of the diplomats. The brutalizing effect of warfare with a savage or half-civilized foe is dwelt on, particularly in China, where, from immemorial custom, "every corpse is mutilated and every prisoner tortured."

We are given descriptions of Tientsin and Peking, the great wall, the street scenes and noises, the cultivated fields with their various products, the poisonous river water which must be clarified with alum to be drinkable, the house-building and furnishing, and some little note of the home life so far as it could be observed in war time. Every country has its own smell, quoting from another author, and the captain describes the all-pervading smell around Tientsin in the summer season as "simply infernal." There are some interesting paragraphs on the jargon words which the troops picked up in their daily contact with the coolies, but the American reader may look twice before recognizing in *dshunke* and *tschau-tschau*, the familiar junk and chowchow. The pages on the several breeds of native horses are especially valuable from the military point of view. The author's general conclusion seems to be that China of to-day is about in the status of Europe in the sixteenth century.

And now, after nineteen months of campaign and garrison, during which the captain did not escape an experience with fever, the order

comes to break camp for the coast and the homeward voyage, the goodly feast is spread, and the comrades for the last time turn down their glasses to the chorus of the Song of the Mounted Infantry :

Und sind die Wirren wieder hier beendet,
Und herrscht in China Ruhe, Frieden, Glück,
Dann kehr'n wir heim zum lieben Vaterlande
Und denken an die schöne Zeit zurück.

The author combines the many-sided instructiveness of Humboldt with the irrepressible humor of Bourke in his happiest vein. The volume is handsomely bound, and printed in Roman type, and is enriched with seventy excellent illustrations from photographs, an appendix of notes which show wide reading in a number of languages, and a map of the province of Chi-li.

JAMES MOONEY.

Mat and Basket Weaving of the Ancient Hawaiians, Described and Compared with the Basketry of the other Pacific Islanders. By WILLIAM T. BRIGHAM, A.M., *Director, etc.* With an Account of *Hawaiian Nettings.* By JOHN G. STOKES, *Curator of Polynesian Ethnology.* Memoirs of the Bernice Pauahi Bishop Museum. Vol. II, No. 1, Honolulu: Museum Press, 1904. 4°, 144 pp., 153 figs., 16 pl.

As the title states, Messrs Brigham and Stokes treat exhaustively of Hawaiian matting, basketry, and netting, making extensive studies in other parts of the Pacific also for purposes of comparison. Dr Brigham has arranged his topics chiefly by materials, but the peculiar nature of each one of the substances used makes that order practically structural as well. Here is his table of contents :

Palm stems. Shields.

Pandanus. Hats, mats, pillows, baskets, sails, garments, covered cord, Fijian baskets.

Freycinetia roots. Baskets.

Fern stems. Baskets, fish traps.

Grass. Makaloa mats, rush mats, cord, bambu fans, combs, spears, clubs, sandals.

Australian baskets.

Hibiscus fiber. Mats of the Samoans.

Baskets of the Maori.

Banana fiber. Loom work of the Caroline islanders ; dress mats.

Olona fiber. Nets, koko pun pun.

The foregoing are the principal substances and types of workmanship,

but the very first pictures prove how Nature is ever present in that insular area with materials and suggestions. Figure 2 shows a good sized fish carried along by means of a ki leaf (*Cordyline terminalis*), the outer end wrapped in a half-knot about the body.

A list of the textile plants follows :

- Flax (*Phormium tenax*).
- Mulberry (*Broussonetia papyrifera*).
- Pandanus (*Pandanus odoratissimus* et al. sp. and *P. Caricosus*).
- Coconut (*Cocos nucifera*).
- Hibiscus (*Pariteum tiliaceum*).
- Banana (*Musa* var. sp.).
- Grass, riki riki.
- Sedge (*Cyperus laevigatus*).
- Olonā (*Touchardia latifolia*).
- Mamaki (*Pipturus albidus*).
- Ieie (*Freycinetia arnotti*, and in Tahiti *F. demissa*).
- Iwaiwa, ferns.
- Ki leaf (*Cordyline terminalis*).

The dyes used are —

- Crimson. By mixing inner bark of roots of nonufi'afra (*Eugenia malaccensis*) with sea water and lime.
- Yellow. Turmeric and oil; and from bark of the nonu (*Morinda cetrifolia*).
- Purple. Young shoots of mountain plantain soa'a (*Musa fehi*).
- Brown. By mixing inner bark of pani (?) with sea water.
- Black. By burying in soft mud of a tan patch.

It is noted at a glance that the Hawaiians and other islanders dealt with in these excellent monographs were better provided with raw materials for their varied textile work than were the American Indians on the Pacific coast. The fact that the insular environment embraces also our Philippine islands, makes the study of the subject more interesting and pertinent.

How easy it was to convert a coco palm leaf 10 or 12 feet long into either a receptacle or a vehicle, as Mr Brigham shows in figures 1-4; but in the very next illustrations the same leaves shredded are wrought into the finest twills. Figures 8-16 are examples of checkerwork, twilling, twining, and openwork on fans with artistic handles and borders. On pages 8-15 will be observed the *playing* with oblique warps and wefts occurring in many parts of the Pacific, by which geometric and even animal forms are created on borders. These cunning islanders have

caught the knack of covering up strong coco fiber with finer materials (see fig. 28, p. 22). Indeed, from cover to cover in these monographs one is in the midst of surprises as he makes a mental comparison with the natives of the Pacific coast of America. Among the islanders are found coiled work on several foundations, with continuous and interrupted joining; false bottoms to baskets in different weaving, which recalls the Eskimo fashion of a piece of hide for a start; twined weaving, in every variety but one, which would make California Indian women stare; wicker work in rattan; pandanus mats and hats of leaves sewed together as in tule mats; tapa cloth in perfection. And yet the differences in the finished products are also striking. Forms, materials, functions, and designs vary greatly. The absence of the coco fiber and the long rattans eliminates from the American textiles the wonderful braids, knots, and borders, which by their ingenious varieties puzzle the student who tries to work them out.

Mr Brigham devotes a great deal of attention to mats and mat making; this is well deserved, for many of the mats require twelve months' work, and all of a woman's skill to complete. The finishing of a mat of this kind was made the occasion of no little rejoicing. All the women of the neighborhood familiar with the manufacturer were summoned on a given day to bathe the mat. On assembling, they proceeded to wash the mat in fresh water and after stretching it out to dry they adjourned to the house to partake of the feast provided by the hostess to celebrate its completion. The author is careful to collect the folklore of mats in Fiji and elsewhere.

The processes of weaving elaborate specimens is continued in soft basketry or wallets and in those used for clothing. Specimens from some of the islands are most gorgeous. The method of ornamenting the wallets is quite un-American, for in the last named all kinds of surface decorations are a part of the technic. Not so in the Malay-Polynesian area, where a stout wallet forms the inside, working part, while the most highly decorated outside is quite another affair.

The author devotes a section to the sandals of pandanus, dracena, hau bark, banana, etc., whose use is made necessary by the glassy lava from the volcanoes.

In this connection attention must be drawn to the fact that the gourd takes the place of pottery in Hawaii and that the watertight cooking basket was not known. The double wallet is imitated in immense variety, however, in the basketry of all kinds, and netting of curious workmanship is closely wrought about the gourd. The last-named article furnishes the vessel, and the weaving or knotting the vehicle.

Mr Stokes has done thorough work on the nets and netting of the Hawaiians. Nature was bountiful to them in materials, giving the fibrous husk of the coconut (*Cocos nucifera*); the sedge, ahuawa (*Cyperus laevigatus*); bast fibers of the hibiscus, hau (*Paritum tiliaceum*); waoke (*Broussonetia papyrifera*), the kapa fiber; and, most of all, oloná (*Touchardia latifolia*). Human hair and, later, horse hair, were enlisted for special uses. The shuttles and gauges employed were not different from our own. Nettings, according to the authors, had three functions: the coarsest for fishing; a special kind for featherwork (see Brigham, *Memoirs of the Bernice Pauahi Bishop Museum*, II, no. 1); and for kokos, or bags of netted or knitted cord, which, says Stokes, when suspended looked like inverted hemispheres superposed by elongated cones. Technically, each koko had three parts: the piko (navel), or starting ring, A to O; hanai (belly), the netted portion, methods of technic, A to M; and the alihi, or kakai, the cords looped or knotted into the upper edge of the hanai to serve for carrying or suspension. For gathering these there are two plans.

There are thirty-two pages of text devoted to the kokos; forty-nine illustrations, some containing several figures, and most of them working drawings.

Every student of the ethnology of the Pacific must have access to these excellent monographs.

O. T. MASON.

SOME NEW BOOKS

The Psychic History of the Cliff Dwellers, their Origin and Destruction. By Emma F. Jay Bullene. Denver, Colorado: The Reed Publishing Company, 1905. 12°, 256 pp., ill.

By the application of psychometry the author aims to show the origin of the Cliff-dwellers "and the general Norse relationship to the Mound Builders, the Toltecs, Aztecs and their descendants, the Pueblo Indians." [!]

Some Indian Land Marks of the North Shore. An Address read before the Chicago Historical Society at a Special Meeting held February 21, 1905. By Frank R. Grover. [Chicago: n. d.] 12°, pp. 259-292, ill.

The Anthropology of the State of S. Paulo, Brazil. Second enlarged edition. By Professor Dr Hermann von Ihering. São Paulo: Typography of the "Diário oficial", 1906. 8°, 52 pp., 2 maps.

A valuable treatise, with bibliography and two maps showing ancient and present tribal distribution.

Rionegra. Por B. Tavera-Acosta. Ciudad-Bolivar. (Venezuela.)
Tip. y Encuad. de Benito Jimeno Castro. 1906. 12°, xi, 150 pp.

Contains considerable anthropological data.

Supplementary Papers of the American School of Classical Studies in Rome. Volume I. New York: The Macmillan Company, 1905. 4°, viii, 220 pp., ills.

CONTENTS: Stamps on Bricks on the Aurelian Wall at Rome. By George J. Pfeiffer, Albert W. Van Buren, and Henry H. Armstrong.

La Civita near Artena in the Province of Rome. By Thomas Ashby, Jr. and George J. Pfeiffer.

Carsioli: A Description of the Site and the Roman Remains, with Historical Notes and a Bibliography. By George J. Pfeiffer and Thomas Ashby, Jr.

Die Aphrodite von Arles. By Arthur Mahler.

A New Variant of the "Sappho" Type. By Herbert Richard Cross.

The Christian Sarcophagus in S. Maria Antiqua in Rome. By Charles R. Morey.

The Text of Columella. By Albert W. Van Buren.

The Date of the Election of Julian. By Charles R. Morey.

Report on Archaeological Remains in Turkestan. By Richard Norton.

Strandliniens Beliggenhed under Stenaldere i det Sydøstlige Norge. Af W. C. Brøgger. (Norges Geologiske Undersøgelse, No. 41.) Kristiania: I Kommission hos H. Aschehoug & Co., 1905. 8°, viii, 330 pp., map, pls.

The Cahokia Mounds, Madison and St. Clair Co's, Ills. By Cyrus A. Peterson and Clark McAdams. St. Louis, Mo., April, 1906. Broad-side, 19 x 24 in.

A plan of the celebrated group of 69 mounds, with three half-tone illustrations and brief description.

A Study in the Etymology of the Indian Place Name Missisquoi. By George McAleer, M.D. Worcester, Mass.: The Blanchard Press, 1906. 80, 102 + 2 pp.

Explorations of the Baum Prehistoric Village Site. By William C. Mills, M.Sc. Reprint from the Ohio Archaeological and Historical Quarterly, Vol. XV, No. 1. Columbus: Press of Fred. J. Heer, 1906. Roy. 8°, 96 pp., ills.

Sociological Papers. Volume II. By Francis Galton, P. Geddes, M. E. Sadler, E. Westermarck, H. Höfding, J. H. Bridges and J. S. Stuart-Glennie. Published for the Sociological Society. London: Macmillan & Co., Ltd.; New York: The Macmillan Co., 1906. 8°, xiii, 307 pp.

The papers treat of the subjects of Eugenics (Galton); Civics: as Applied Sociology (Geddes); The School in some of its Relations to Social Organization and to National Life (Sadler); Influence of Magic on Social Relationships (Westermarck); Relation between Sociology and Ethics (Höfding); Guiding Principles in the Philosophy of History (Bridges); Sociological Studies (Stuart-Glennie).

Material zur Sprache von Comalapa in Guatemala. Von Dr Jakob Schöemb. Dortmund: Druck und Verlag von Fr. Wilh. Ruhfus, 1905. 12°, xi, 237 pp.

The So-called "Gorgetts." By Charles Peabody and Warren K. Moorehead. Phillips Academy, Department of Archaeology, Bulletin II. Andover, Mass.: The Andover Press, 1906. 8°, 100 pp., 19 pl.

Kwakiutl Texts. By Franz Boas and George Hunt. Memoir of the American Museum of Natural History. The Jesup North Pacific Expedition. Vol. III, part III. Leiden: E. J. Brill, Ltd.; New York: G. E. Stechert, 1905. 4°, pp. 403-532.

Contributions to the Ethnology of the Haida. By John R. Swanton. Memoir of the American Museum of Natural History. The Jesup North Pacific Expedition. Vol. V, part I. Leiden: E. J. Brill, Ltd.; New York: G. E. Stechert, 1905. 4°, 300 pp., maps, pls., figs.

The Koryak. Religion and Myths. By Waldemar Jochelson. Memoir of the American Museum of Natural History. The Jesup North Pacific Expedition. Vol. VI, part I. Leiden: E. J. Brill, Ltd.; New York: G. E. Stechert, 1905. 4°, 382 pp., map.

Haida Texts and Myths. Skidegate Dialect. Recorded by John R. Swanton. Bureau of American Ethnology, Bulletin 29. Washington: Government Printing Office, 1905. 8°, 448 pp.

PERIODICAL LITERATURE

CONDUCTED BY DR ALEXANDER F. CHAMBERLAIN

[NOTE.—Authors, especially those whose articles appear in journals and other serials not entirely devoted to anthropology, will greatly aid this department of the *American Anthropologist* by sending directly to Dr A. F. Chamberlain, Clark University, Worcester, Massachusetts, U. S. A., reprints or copies of such studies as they may desire to have noticed in these pages.—EDITOR.]

GENERAL

- Bair** (J. H.) Human infancy—its causes, significance, and the limits of its prolongation. (Univ. of Colorado Studies, Boulder, 1905, III, 25-29.) Infancy "came as the direct result of increased cerebral capacity, and it affords a basis for learning by experience." Lack of pliability prevents acquisition or adaptation to the higher spiritual environment among lower beings, individuals, races.
- Barclay** (J. W.) Malthusianism and the declining birth-rate. (Ninet. Cent., Lond., 1906, 80-89.) From study of recent statistics B. concludes that man can and does increase subsistence faster than population can multiply; that a declining birth-rate marks the growing well-being of a people and does not indicate with even approximate accuracy the growth of the population; that the birth-rate declines with the death-rate, and their close correspondence suggests the existence of a natural law that ultimately controls conception. The superior fertility of the lower and the inferior fertility of the higher classes insures proper social mixture.
- Baudouin** (M.) La technique moderne des fouilles des sépultures mégalithes. (R. Scientif., Paris, v^e s., v, 136-141.) Discusses excavation and investigation, finds, and descriptions of work, restoration. Such investigations should be carried out according to a technique justified by experience and by competent *savants*.
- von Bechterew** (W.) Ueber Messung des Gehirnvolums. (Neurol. Cbl., Leipzig, 1906, xxv, 98.) Note on the water-method of measuring brain-volume, approved by Prof. B.,—a device for this process was described by him in 1892.
- Biunt** (W. S.) The genealogy of the thoroughbred horse. (Ninet. Cent., Lond., 1906, 58-71.) Review and critique of Ridgeway's recent work. B. thinks with Piétrement that the horse was "first tamed in the northern plains, that is to say, in some of the cold regions of Upper Asia or Eastern Europe, where snow lay long in winter, and so may have suggested the using of animals for draught in sledges rather than for any purposes of riding." The modern Kehailan is indigenous to Nejd.
- Bongrand** (Dr) La valeur de l'expérimentation sur l'homme en pathologie expérimentale. (R. Scientif., Paris, v^e s., v, 362-365.) Dr B. maintains that subject and experimenter should not be one and the same person, that a committee is preferable to a single individual, that frequent repetitions are desirable.
- Boule** (M.) "La Fable éolithique." (L'Anthropologie, Paris, 1905, xvi, 726-731.) Résumés a recent article by M. de Lapparent in the *Correspondant* on "the eolithic fable." M. de L. facetiously suggests as a good title for a book that would add to the gayety of nations: *Les silex taillés par eux-mêmes*.
- Burbank** (L.) The training of the human plant. (Century Mag., N. Y., 1905, LXXXII, 127-138.) Argues in favor of differentiation in training (children should be reared for the first ten years of life in the open), being honest with children, keeping fear away, using sunshine, fresh air, nourishing food (avoiding overfeeding as well as underfeeding), metamorphosis of the abnormal, strengthening of the weak, etc. B. is against the marriage of "first cousins

reared under similar environments," and would prohibit altogether the marriage of the physically unfit. He believes also that "ten generations should be ample to fix any desired attribute."

Capitan (L.) Les éolithes, d'après Rutot. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 274-279, 13 figs.) Notes concerning the "eoliths" described and figured in Rutot's *Coup d'œil sur l'état des connaissances relatives aux Industries de la Pierre à l'exclusion du néolithique*, and the stratigraphy of the place where they were found.

— et Papillault (G.) L'identification du cadavre de Paul Jones et son autopsie 113 ans après sa mort. (Ibid., 269-273.) Brief account of the identification of the remains of Paul Jones on the basis of historical records, the busts by Houdon and the data yielded by the corpse itself, 113 years after death. See also *Bull. Soc. d'Anthr. de Paris*, 1905, v^e s., vi, 363-369.

Charvillat (M.) Anatole Roujon 1841-1904. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., vi, 256-259.) Appreciation, sketch of scientific activities and list of publications (257-259) of Dr A. Roujon. His writings were chiefly concerned with prehistoric archeology and ethnology. In 1873 he published in the *Bulletin de la Société d'Anthropologie de Paris* an article on *Photographies mexicaines établissant l'existence dans ce pays de Mongoloides et d'Autraloïdes*.

Costantin (J.) L'ancêtre de l'homme d'après les anciens. (R. Scientif., Paris, 1905, v^e s., v, 1-6, 33-37.) Discusses the argonaut and its actions, the legends about it, etc., Mycenaean cephalopods, etc. The ancients thought the male of the argonaut was a young cuttle-fish. The cuttlefish was regarded as the "sketch" of a man. The ancestor of man was a "fetus-fish;" the cuttlefish, according to the old Assyrians, Greeks and Romans, was the precursor, if not the ancestor, of the human race.

Cutore (G.) Di una rara monstruosità nell'uomo, perobranchius achirus. (Anat. Anz., Jena, 1906, xxviii, 222-229, 2 figs.) Describes, with bibliography, the case of an otherwise normal individual (with normal ancestry and connections) from Catania, whose left fore-arm is reduced in length, with the fingers represented by five little fleshy appendices.

Dwight (T.) Numerical variation in the human spine, with a statement concern-

ing priority. (Ibid., 33-40, 96-102.) Résumés recent important papers by Bardeen, Adolphi, and Ancel and Sencert, with criticisms, — in the main confirmatory of D's conclusions of 1901, except as to theory of irregular segmentation. Additional data from the Warren Museum collection are given (7 specimens). Dwight and Tenchini hit upon the idea of compensation independently at about the same time.

Fourdrignier (E.) Les étapes de la céramique dans l'antiquité. Chronologie céramique. Vases Susiens. Poterie dolménique. Anciens procédés de fabrication. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., vi, 222-246.) Discusses early Athenian, Mycenaean, Cretan, Susian, neolithic pottery. According to F., "the origin of pottery goes back at least to the very commencement of the neolithic period." The dolmenic ceramic remains indicate a crude and infant industry.

Giuffrida-Ruggeri (G.) Discussioni di antropologia generale. (Mon. Zool. Ital., Firenze, 1905, xvi, 148-158.) Discusses and criticizes chiefly Stratz's recent work, *Naturgeschichte des Menschen* (Stuttgart, 1904), in which he sets forth a monogenetic conception of the precocious autonomous evolution of the human stock, exclusive of the anthropoids. Dr G.-R.'s scheme differs from S's in regarding the white race not as a direct descendant of the primitive type, but as the last chronological succession of the three principal human directions (black, yellow, white).

Grahl (F.) Angeborener ausgedehnter Naevus pigmentosus in Verbindung mit Pigmentflecken im Gehirn. (Beitr. z. path. Anat., Jena, 1906, xxxix, 66-81, 1 pl., 1 fig.) Describes a case of extensive *Naevus pigmentosus* associated with pigment-spots in the brain, — newborn well-nourished female infant of 50½ cm. from Cologne. On the optic thalami are two small dark spots; part of the cerebellum also shows coloration. The body has a broad band of color around the middle and spots occur also elsewhere.

Hadley (A. T.) Mental types and their recognition in our schools. (Harper's Mo., N. Y., 1905, cx1, 123-129.) Proposes grouping of students "according to their mental habits" as an improvement for the mass on the elective system so successful with the few.

Helm (K.) Die Heimat der Indogermanen und der Germanen. (Hess. Bl. f. Volksk., Lpzg., 1905, IV, 39-71.) Discusses the question of the primitive home of the Indo-Europeans and the Teutons from the points of view of anthropology, culture-history, archeology, etc. H. cites proof of the continuity of west European culture,—"the men of the shell-heaps were the ancestors of those peoples (*i. e.*, the Teutons) who, proceeding thence in historic times, occupied a large portion of Europe and other continents." They formed a small section of the Indo-Europeans, who had a much more extended primitive home. The advances in culture noted in the later stone age are due, not to the immigration of a culturally superior people, but to the fact of independent development *in loco* of native stock, or their rise, slowly and laboriously under foreign influence to a higher stage of civilization.

Laurent (O.) La trépanation rolandique et la ponction ventriculaire dans l'arriération. (C. R. Acad. d. Sci. Paris, 1906, CLXII, 356-359.) Describes three experiments (girl of 4 months, boy of 10 years, child of 5 years), with more or less ameliorative results.

Laussedat (M.) Sur le relevé des monuments d'architecture d'après leurs photographies, pratiqué surtout en Allemagne. (Ibid., 435-438.) Discusses the restitution (common in Germany) of architectural monuments with the aid of photographs. From 1885 to 1905 some 835 monuments have been thus reconstituted in 185 different localities.

Le Roy (A.) Le rôle scientifique des Missionnaires. (Anthropos, Salzburg, 1906, I, 3-10.) Beside his first duty ("to propagate the gospel") the missionary, by his vocation, comes to have a knowledge of the country (geography), its social conditions, religious beliefs and practices, languages, etc. He must serve God, but he may be a discoverer and investigator as well.

Libby (M. F.) Hall on growth. Précis and comments. (Investig. Dept. Psy. and Ed. Univ. Colorado, Boulder, 1905, III, 1-23. Résumés G. Stanley Hall's *Adolescence* (2 vols. 1904).

Loisel (G.) L'œuf femelle. (R. de l'Éc. d'Anthr. de Paris, 1905, XV, 361-366.) Contains interesting data as to the nature of the female egg, female births, etc. In the rare cases where it was possible to differentiate it the female egg was dis-

tinguished from the male by being larger and better protected. Instances are recorded of a man having 26 girls in succession (no boy) by the same woman; another had 24 boys without a girl.

von Luschan (F.) Ziele und Wege eines modernen Museums für Völkerkunde. (Globus, Brunschwg., 1905, LXXXVIII, 238-240.) Discusses the objects, nature, uses, etc., of a modern ethnological museum. For academic uses small collections are quite sufficient. Good photographs of objects, types, ceremonies, etc., can be well employed for instruction. Museums should be neither collections of rarities nor art-boards. The "show side" must be divorced from the scientific. Neither school-boys nor Cook tourists need to rush past everything in the building.

Marie (Dr) et Pelletier (Madeleine) Craniectomie et régénération osseuse. (Bull. Soc. d'Anthr. de Paris, 1905, V^e s., VI, 369-373, 1 fig.) Discusses ineffective—"this case proves the uselessness of craniectomy as a therapeutic means in idiocy"; trepanning in a male microcephal of 18 years. An osseous regeneration, almost complete, had taken place, contrary to the opinion generally entertained by surgeons and anatomists.

Monseur (E.) L'âme pupilline. (R. de l'Hist. d. Relig., Paris, 1905, I, 1-23.) Treats of the folk-lore of the *pupil* of the eye. Endeavors to prove that "the *pupil* soul" was a very ancient conception, primitive man easily seeing in the image in the eye of him at whom he was looking, the guardian spirit, soul, etc., of the other. The "evil eye" is also discussed. The "little man of the eye" has a long ethnic history.

— L'âme poucet. (Ibid., 361-376.) Discusses "the Tom-thumb soul" in folk-lore, etc.—the idea of the soul as a little man an inch or so high resident in the head, etc.

Montané (L.) La infancia de la humanidad. (R. de la Fac. de Letr. y Ci., Univ. de la Habana, 1905, I, 168-183, 2 figs.) Based chiefly on Verneau's *L'enfance de l'humanité*. Treats of prehistoric man in western Europe, the various epochs and their characteristics, etc.

Moutier (A.) De l'influence de la vieillesse sur la pression artérielle. (C. R. Acad. d. Sci., Paris, 1906, CLXII, 599-600.) Experiments of M. show that hypertension of the arteries is not as common in the old as is generally

believed, and when it does occur is the result of arterio-sclerosis and not due to the normal evolution of the organism.

von Negelein (J.) Die Pflanze im Volksglauben. (Globus, Brunschwg., 1905, LXXXVIII, 318-320, 347-349.) Treats of the folk-lore of flowers (Teutonic and Indo-European), water-origin of flowers and flower-nymphs, flower-names for girls and their significance, flower-symbols, parallelism of human beings and plants, spring-lore, plant-medicine, etc., ancestral tree-worship, soul-lore, etc.

Reinach (S.) L'origine des sciences et la religion. (L'Anthropologie, Paris, 1905, xvi, 657-663.) R. argues that the cultivation of cereals and the domestication of animals is due originally to religion and superstition; indeed religion is at the beginnings of everything. The history of mankind is merely a sort of progressive laicization. Magic is the strategy of animism. This subject is further developed in the second volume of the author's *Cultes, mythes et religions* (Paris, 1906).

Salomon (P.) Description d'un fœtus achondroplase. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., vi, 303-308.) Describes, with some detail, a male achondroplastic still-born infant (almost at term), figuring since 1864 in the Dareste collection in the Lille Museum as phocomelian. In a future memoir Dr S. intends to study the rôle of achondroplasia in the production of phocomelian monsters.

Schmidt (W.) Die moderne Ethnologie. (Anthropos, Salzburg, 1905, i, 134-163.) First part, German text with French version on opposite page;—of a general discussion of the nature and extent of ethnology, its divisions, etc.

Schrader (F.) Sur les conséquences physiques et historiques du retrait des anciens glaciers. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 408-414.) Discusses the effects upon man and his migrations of the retreat of the glaciers. According to S., the human swarming of the neolithic epoch was due to the disappearance of the glacial régime and the gradual return of the temperate flora and fauna, and the attraction exercised upon a certain human group by these new conditions. The rapports of Asia and Europe are also discussed. To glacial Europe corresponded a more European Asia. As Europe became more habitable Asia became less. The desiccation influenced

the evolution of the peoples,—beyond the hives of India and China lay barbaric tribes and nomadic hordes, where civilization was largely inhibited.

Schwalbe (G.) Zur Frage der Abstammung des Menschen. (Globus, Brunschwg., 1905, LXXXVIII, 159-161.) Critique—reply to a previous article by Kollmann. S. maintains that the Neanderthal man, *homo primigenius*, is the predecessor of the present human race, *homo recens*. Also argues against K.'s theory of the priority of small races, such pygmyoid remains as have been noted being rather individual variations within the limits of one and the same race.

Taylor (J. W.) The Bishop of London on the declining birth-rate. (Ninet. Cent., Lond., 1906, 219-229.) Author concludes that the steady decline in the birth-rate is due to "artificial prevention" (both the legitimate and the illegitimate birth-rates are so affected, the latter being no longer a criterion of morality). The result is grievous physical, moral and social evils for the whole community. The paper of Barclay is severely criticized. See Barclay (J. IV.).

Thullier (H.) Discours prononcé à l'inauguration du monument de Gabriel de Mortillet. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 385-388.) Brief appreciation of scientific activities, and list of chief publications.

Tschepourkowsky (E.) A quantitative study of the resemblance between man and woman. (Biometrika, Cambridge, 1905, iv, 161-168.) Discusses stature, cephalic index, nasal index, head length, facial index, relative arm length, with respect to the various peoples of the Russian empire (as reported by various authorities, particularly Ivanovski). In three of the characters compared woman is more variable than man, though in five the difference is not sensible.

Verworn (M.) Ueber die ältesten Spuren des Menschen. (Corr.-Bl. d. D. Ges. f. Anthropol., München, 1905, xxxvi, 63-64.) Discusses the question of the "eoliths," etc. M. concludes that "at the close of the miocene period there already existed a somewhat differentiated culture,"—when man is silent, stones speak.

Welldon (J. E. C.) The children of the clergy. (Ninet. Cent., Lond., 1906, 230-238.) From the statistics of the

Dictionary of National Biography it appears that "the eminent or prominent children of the clergy since the Reformation have been 1,270," while in all English history the corresponding numbers for the children of lawyers and doctors are respectively, 510 and 350. The distribution of eminent children of clergymen among the various walks of life is discussed. In Scotland "the sons of the manse" have long had repute.

Woodruff (C. E.) Complexions of the insane. (N. Y. & Phila., Med. J., 1905, Repr., pp. 7.) Gives results of the records, by Dr Russell, of the N. Y. Commission in Lunacy, of the color of eyes, hair, and skin, of 1,439 insane individuals. The native-born insane seem to be of lighter type than the population from which they are drawn. According to Major W., blond invalids (tuberculous especially) should be kept north,—"only brunet invalids will do well in the south."

— The neurasthenic states caused by excessive light. (Med. Rec., N. Y., 1905, Repr., pp. 21.) Major W. holds that "the main result of excessive light, which is not of sufficient degree to cause necrosis of protoplasm, is some kind of a chemical breaking up which renders it paretic." The effects of the tropics on blonds, the good results of sanatoria in the north for southern neurasthenics, the therapeutic uses of light, complexions, seasonal mortality, etc., are briefly discussed. Old estimates of the excellence of sunny climes must be revised. The most healthful spot in the country, according to the last report of the Surgeon-General, is the northwestern corner, a very cloudy and rainy area.

— The identity of variations and modifications. (Amer. Med., Chicago, 1905, x, 661-665, 706-710.) After discussing various theories of variation, Major W. argues that "modification is a variation in the soma due to a temporary change in the environment"—both are identical and neither is hereditary unless the causes are repeated, and (paradoxically) each is hereditary as long as the cause exists. Return to the normal is almost a universal rule in all organisms, if the environment is restored. Similarity of environment may evolve similarity of types of man in widely separated areas, e. g., the Amazonian Leggs and the aquatic Malays.

EUROPE

Anderson (Nina) A tour in Corsica. (Cheltenham Ladies' Coll. Mag., Cheltn., 1906, 27-35.) Notes on Bastia, San Fiorenzo, Ajaccio, Corte, Bonifacio, etc. At a church near Bastia is a collection of relics which includes a clod of earth from the garden of Eden, a sample of manna, Moses' rod, etc. The *burgerie* is typical of the more peaceful life of the people about Ajaccio of to-day, but it "has little in common with an English sheep-farm." Murder is still the national vice of the Corsican.

Batky (Zs.) Blaue Sgraffito-Geschirre. (Anz. d. Ethnogr. Abt. d. Ung. Nat.-Mus., Budapest, 1905, III, 48-50, 1 pl., 1 fig.) Describes briefly the blue "sgraffito-ware" of which a collection (20 jugs and 34 plates) dating from 1786 to 1846, is in the Hungarian National Museum. The flourishing period of this ware was 1799-1813; the earliest known specimen goes back to 1781.

Baudouin (M.) Découverte d'un menhir tombé sous les dunes et d'une station gallo-romaine aux Chaumes de Saint-Hilaire-de-Riez, Vendée. (Bull. Soc. d'Anthrop. de Paris, 1905, V^e s., VI, 271-278, 2 figs.) Describes, in continuation of previous article, the *Pierre du Trou d'argent* (a fallen megalith), a polished axe, some pseudo-flints, human bones and some dozen skeletons, Gallo-Roman vases, some copper or bronze rings, etc., found in 1902-1905 at what appears to be a Gallo-Roman "station," of the second or third century A.D.

— Les gravures sur os de l'époque gallo-romaine à la nécropole de Trousepoil, au Bernard, Vendée. (Ibid., 310-320, 6 figs.) Gives account of graffiti, marks resembling the Roman figures, V, VI, XI, VII, VIII, IX, IV, X, and heads of animals, etc., on bones of the Gallo-Roman epoch found in 1902-1903 in the sepulchral pits of the necropolis of Trousepoil. They are probably ancient, isolated signs, only resembling Roman figures. E. Rivière reports similar "figures" from the necropolis of Hameau, Paris.

Bennett (J. I.) Æsculapius the miracle-worker. (Union Univ. Q., Schenectady, N. Y., 1905, I, 252-265.) A somewhat wit-moved discussion of the labors of "the John Alexander Dowie of the Greeks."

Breuil (H.) Prétendus manches de poignard sculptés de l'âge du renne. (*L'Anthropologie*, Paris, 1905, XVI, 629-632, 3 figs.) The Abbé B. argues that the so-called poniard handle of Laugerie-Basse, which figures in G. de Mortillet's *Le Préhistorique* is not such but simply an incompleting piece of sculpture, as the figures of reindeer carved one behind another, e. g., from Bruniquet, indicate. Their exact use is undetermined, — they may have been clothes-buttons.

Brunner (K.) Ueber Funde bei Lwno, Kr. Schubin, Posen. (*Z. f. Ethn.*, Berlin, 1905, XXXVII, 899-912, 19 figs.) Describes briefly nine finds (chiefly pottery urns, and other clay objects; stone hammer, flints, amber bead, etc.), from graveplaces of the early bronze age at Lwno in Posen. The human remains had quite disappeared.

Busse (H.) Urnenfeld bei Wilmersdorf in Kreise Storkow-Beeskow. (*Ibid.*, 1905, 920.) Notes finds of urns and seven subsidiary vessels, stone hammer, bone beads, and other objects.

Capitan (L.) Présentation de silex de Guerville près Mantes, pseudo-éolithes. (*Bull. Soc. d'Anthr. de Paris*, 1905, V^e s., VI, 373-378.) Describes some "pseudo-éoliths," of the sort discovered by M. Laville at the cement factory of Guerville, near Mantes. These "pseudo-éoliths" are made by the machinery that breaks up the masses of slate and chalk (the latter often containing pieces of flint, etc.); they resemble closely the so-called "éoliths" of Rutot, etc.

— Recherches dans les graviers quaternaires de la Rue de Rennes à Paris. (*Ibid.*, 269-270.) Brief account of the discovery of a tooth of the rhinoceros *licorhinus* and a tooth of a mammoth in the quaternary gravels exposed during the construction of the metropolitan subway in the Rue de Rennes, city of Paris. No flints of undisputed human make were found, except a few "éoliths."

— Congrès préhistorique de France, X^e session tenue à Périgueux. (*R. de l'Éc. d'Anthr. de Paris*, 1905, XV, 373-385.) Résumés papers read at the French Prehistoric Congress held at Périgueux Sept. 26-Oct. 1, 1905. A large portion of the communications dealt with "cave man" and related topics. A. de Mortillet read a paper on Bolivian primitive implements (stone spades, mallets, etc.), based on a collection made by him in the region of L. Titicaca.

Charbonneau-Lassay (L.) L'abri sous roche et les quartz taillés de Saint-Laurent-sur-Sèvre, Vendée. (*Ibid.*, 344-346, 4 figs.) Describes two "coup-de-poing" of quartzite of paleolithic type from the immediate neighborhood of the rock-shelter of St Laurent-sur-Sèvre. These are the only Chellean objects so far known representing a paleolithic industry in the Vendean granite.

Cook (A. B.) The European sky-god. III: The Italians. (*Folk-Lore*, Lond., 1905, XVI, 260-332.) Treats in detail of Jupiter, his names and appellations, characteristics, functions (sky-god, weather-god, water-god, earth-god), sacred-tree (oak, beech, poplar, mistletoe), symbols, the "golden bough," the *manes*, the king as an embodiment of Jupiter, recognition of Jupiter in popular heroes, latent belief in a human Jupiter, emperors and Jupiter, the king as representative of the sky-god, killing the effete king, the *Poplifugia* and *Regifugium*, the *Nonas*, etc.

Da Costa-Ferreira (A.) La capacité crânienne, chez les criminels portugais. (*Bull. Soc. d'Anthr. de Paris*, V^e s., VI, 357-361.) Based on study of data of Dr Ferraz de Macedo. The author concludes that Portuguese criminals, in general, have a cranial capacity larger than that of normal individuals and are also more corpulent, — this corpulence is the chief factor in increasing such capacity. Determination of criminal type from cranial capacity is impossible.

Elworthy (F. T.) A solution of the Gorgon myth. (*Folk-Lore*, Lond., 1905, XVI, 350-352, 2 figs.) Adduces further evidence of the Perseo-lobster explanation.

Favreau (Dr) Ueber Kiesgrabenfunde bei Neuhaudensleben. (*Corr.-Bl. d. D. Ges. f. Anthrop.*, München, 1905, XXXVI, 63-66.) Discusses the probable age of the flints found in the Neuhaudensleben gravel-pits. These belong, according to the animal remains accompanying them, to the interglacial period.

Fritsch (G.) Eine verzierte Hirschgeweihstange. (*Z. f. Ethn.*, Berlin, 1905, XXXVII, 969-970.) Brief account of a piece of red-stag horn (ornamented with numerous marks all over one side and on part of the other) from Stargard in Lausitz.

Giovanetti (—) Quelques observations et corrections se référant au travail de M. Merejkowsky sur les crânes de la

Sardaigne. (Bull. Soc. d'Anth. de Paris, 1905, v^e s., vi, 287-288.) Corrects errors in a table of cephalic, nasal-facial and orbital indices of Sardinian skulls given by Merejkowsky in *Bull. Soc. d'Anth. de Paris*, 1882, p. 164.

Girard (P.) Les origines de l'épopée en Grèce. (R. Int. de l'Enseign., Paris, 1906, LI, 97-114.) Discusses Homer and the pre-Homeric Greece revealed in the last few years. The *Iliad* is relatively modern and composite. Neither it nor the *Odyssey* lies near the birth of culture. The "Greeks were the Greeks because they made Homer; and because in Homer they have set their ideal humanity."

Gönci (F.) Brunnen und Steige im Göcsej. (Anz. d. Ethnogr. Abt. d. Ung. Nat.-Mus., Budapest, 1905, III, 7-12, 4 figs.) Treats of the wells (usually in front of the houses) and stiles among the Magyars of Göcsej in the western part of the district of Zala. Sweep-wells (*csigákutak*, "roll-wells"), tub-wells (*bodonkut*), their preparation, apparatus, etc., are described. The stiles formerly served for entrance into the yard or even the house.

Groos (W.) Die Murichowo, ein Gebiet für deutsche Forschung und Unternehmung. (Globus, Braunschwg., 1905, LXXXVIII, 293-295, 1 fig.) Describes a European *terra incognita*, Murichowo on the river Vardar in Macedonia, which probably contains some of the descendants (non Slav in speech) of the first hordes of Asiatic Bulgars. It contains also a settlement of Germans, a "culture island."

Günther (C.) Coblenz und Umgebung in vorgeschichtlicher, römischer und frankischer Zeit. (Corr.-Bl. d. D. Ges. f. Anthrop., 1905, XXXVI, 57-59.) Brief account of prehistoric, Roman and Frankish remains in and about Coblenz. Paleolithic objects occur at Metternich and Rheos (flint implements, bones of mammoth, teeth, etc.); neolithic at Urmitz; Hallstatt at Neuhäusel. The early Roman period is represented at Urmitz, etc., while the city of Coblenz itself was the site of a *castellum*, and Roman remains occur all around. Frankish remains occur in Lützel Coblenz.

Hahne (H.) Ueber die Beziehungen der Kreidemühlen zur Eolithenfrage. (Z. f. Ethn., Berlin, 1905, XXXVII, 1024-1035.) Discusses the so-called "chalk-

mill fragments,"—pseudo-eoliths,—and the recent articles in particular of Boule and Obermaier. These flints, which so closely repeat the forms of the famous eoliths, were first discovered by Laville at Mantes in France. Material analogous to that of Mantes is cited by H. from Saasnitz. See *Capitan (L.)*.

Hervé (G.) Les alsaciens sous le rapport moral et intellectuel. (R. de l'Ec. d'Anth. de Paris, 1905, xv, 281-301, 317-336, 8 figs.) Treats of literature (three times, in the thirteenth century, in the Hohenstaufen era of Old Germanic epics, at the end of the Middle Ages in the beginnings of German prose and with the mystics, and in the time of the precursors of the Reformation,—Brandt, Marnier, Fischart, etc.,—Alsatian influence was dominant), public men and men of science, teachers, scholars, etc. (Hirn, Wurtz, Reuss, Friburger, Koch, and many historians, philologists, etc.), political ideas (in the Alsatian the "sense of monarchy" is lacking), psychic temperament, art and music (Goethe erred in ascribing to Teutonic genius all the monumental architecture of Alsace). The first great period of Alsatian literature lasted from the ninth century to beyond the Reformation.

Heyne (—) Ueber Körper und Gesichtsbildung der alten Germanen. (Corr.-Bl. d. D. Ges. f. Anthrop., München, 1905, XXXVI, 61-62.) Résumés data from Tacitus, Ausonius, etc., as to the bodily and facial characters of the ancient Teutons (men and women). Their white skin and rosy appearance were praised, but not their voices. Ausonius of Bordeaux fell in love with and married the Swabian slave Bissula. The names *Bruno* and *Bruna* seem to refer to complexion. Later, stature appears to have decreased somewhat, hair and skin color alone remaining of the old Teutonic ideals.

Hoffmann (W.) Heidentum, Katholizismus und Protestantismus in unserer rhein-hessischen Landbevölkerung. (Hess. Bl. f. Volksk., Leipzig, 1905, IV, 1-24.) Treats of Rhenish-Hessian folk-thought, heathen (of old beliefs and customs not a few fragments still remain: the so-called "Mai-Kuren," the straw-rope of St Sylvester's night, some folk-beliefs about the vine and its products, the fabled fountain-origin of infants, etc., beliefs about fire, New Year's, Easter and other practices, customs connected with birth,

- baptism, courting and married life, death and funerals, spirits, the devil, charms, taboos, etc.), Catholic (remains of Catholic influence in Protestant Hesse are seen in current belief as to the relation of man to God and of man to man; as to the sacrament, sin, etc.; the position of the clergyman; the nomenclature of the calendar, etc.), and Protestant (anti-Catholic feeling regarding images, vestments, individualism, rationalism, etc., but not to the exclusion of pietism).
- Jaeger (J.)** Die Tegernsee. (Globus, Brunschwig, 1905, LXXXVIII, 357-362.) Treats of geology of this Bavarian lake, human occupation (no traces of man of stone or metal ages yet discovered; nor did the Romans settle here; not till the sixth century, when the old Bajuvari came, was this region really inhabited), place-names, the cloister (founded in 756), which had a noted and useful career, etc.
- Kahle (B.)** Die verschluckte Schlange. (Ibid., 233-234.) Discusses the old Norse tale of the "snake" in the stomach of the beautiful princess Ingeborg and her cure.
- Kárpáti (K.)** Votiv-Gaben aus Transdanubien. (Anz. d. Ethnogr. Abt. d. Ung. Nat.-Mus., Budapest, 1905, III, 45-47, 2 figs.) Notes on votive-gifts (animal forms, limbs, etc.) in wax from trans-Danubian Hungary. These objects are difficult to obtain, as they are melted into tapers by the religious authorities after they have been offered in procession or at the altar.
- Kiesling (M.)** Das ethnische Problem des antiken Griechenland. (Z. f. Ethn., Berlin, 1905, XXXVII, 1009-1024.) First part of a general discussion of ancient Greek ethnology—geographical and linguistic (folk-names and place-names) data. K. considers that when the Hellenic tribes entered Greece from Central Europe they found there an "autochthonous" people whose original home was in Asia Minor. From the mingling of these arose the *ethnos* of Hellenic culture.
- Knoop (O.)** Pölnische Dämonen. (Hess. Bl. f. Volksk., Lpzg., 1905, IV, 24-32.) Discusses various Polish "demons,"—*djabielek my jacy* ("wash devil"), a recent creation; "*bis*," *plonnik* (a neighbor in league with the devil), *kusy* ("the one with too-short clothes," a euphemism for "devil"), *boruta* and *rokita* (the former is "the Polish national devil," who lives in a subterranean part of an old castle near Gnesen; the latter has more of a peasant character), with brief legends, etc.
- Lehmann-Nitsche (K.)** Ueber die Adalbertsteine zu Strelno, Kujawien. (Z. f. Ethn., Berlin, 1905, XXXVII, 946-951, 2 figs.) Describes the "Adalbert stones" (erratic red granite blocks) in front of a church at Strelno, believed by the author to indicate a cult-place of the old heathen period. Certain reverence attaches to them on the part of the Polish Catholic population.
- Lissauer (A.)** Eine Doppelaxt aus Kupfer von Ellierode, Kr. Northeim, Hannover. (Ibid., 1007-1009, 2 figs.) Describes a double-axe of pure copper (the nineteenth hitherto known) from Ellierode in Hanover, between Borssum and Pyrmont. The axe, which evidently could not be used as a tool, was probably a form of "copper bar," intended for insignia of honor, ex-votos, "money," or the like.
- Zweiter Bericht über die Tätigkeit der von der Deutschen anthropologischen Gesellschaft gewählten Kommission für prähistorische Typenkarten. (Ibid., 793-847, 37 figs., map.) This second report of the committee on maps of prehistoric types treats of the different varieties of special axes (stop-ridged and flanged, West European; northern; north German; Bohemian), listing places where they have been found. The West European and northern types belong to the older bronze age, the north German to the epoch from the middle of the second period of Montelius far into the third period of Montelius, the Bohemian to the epoch from the second to the third period of Montelius.
- Lovett (E.)** The Whitby make-ammonite myth. (Folk-Lore, Lond., 1905, XVI, 333-334, 1 pl.) Notes on the snake-headed ammonites once figuring on town arms of Whitby—the legend was that there were snakes turned into stone by St Hilda (Scott's *Marmion*, II, 13).
- MacLagan (R. C.)** Additions to "The Games of Argyleshire." (Folk-Lore, Lond., 1905, XVI, 340-349, 4 figs.) Treats of hopping games, imitative games, incorrect speaking, knife games, leap-frog, marbles (one game is "American tag"), mental agility.
- Madarassy (L.)** Das Putri. (Hütten-) Viertel. (Anz. d. Ethnogr. Abt. d. Ung. Nat.-Mus., Budapest, 1905, III, 53-57,

- 3 figs.) Describes briefly the *putri* or "hut" quarter, or gypsy section (pariah class) of Hungarian towns, etc.
- Mahoudeau** (P. G.) *Découverte d'une sépulture néolithique à Martigny près Vendôme, Loir-et-Cher.* (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 420-421.) Brief account of the discovery, reported by M. G. Renault, of a neolithic burial-place at Martigny near Vendôme. Through carelessness of the farmer's employés in their search for treasure, at least 20 human skeletons were destroyed. The "furniture" of the grave consisted of a single fine lance-point of flint.
- Manouvrier** (L.) *Crânes de l'époque Mérovingienne.* (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., vi, 361-362.) Notes on 5 skulls (two of the sixth century from the Merovingian cemetery of Cléry; three from the cemetery of Maurepas, one of the eighth, the others of the eleventh or twelfth century) presented to the Society by M. C. Burlanger of Péronne. No measurements. Ethnic types are not very marked in these skulls. One, however, has strong individual characters, prognathism, etc.
- Mehlis** (C.) *Neolithische Näpfschensteine.* (Globus, Brnachwg., 1905, LXXXVIII, 184, 2 figs.) Describes pitted stones from Wallbühl and notes various theories as to their use: amulets and pectoralia; for making holes in skins, etc.; nut-breakers (sambaquis of Brazil); primitive palettes for colors; for shaping clay pearls.
- Mielke** (R.) *Ein tönerner prähistorischer Fuss.* (Ibid., 354, 1 fig.) Brief note on a prehistoric clay foot from Uckermark. The markings indicate that in the middle of the bronze age, at least, sandals were in use.
- von Miske** (K. Frh.) *Mitteilungen über Velem-St. Veit.* (Mitt. d. Anthr. Ges. in Wien, 1905, xxxv, 270-277, 13 figs.) Describes briefly prehistoric finds (bronze ornaments, implements, etc.; pottery) from the foot of Mt Velem St Veit and forged iron from fibulae of the Glasinac type. The use of the clay pyramids is not clear although they seem to be connected in some way with the hearth.
- de Mortillet** (A.) *La trouvaille mérovingienne de Glomel, Côtes-du-Nord.* (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 337-343, 12 figs.) Describes 13 bronze objects (an axe and 12 dagger-blades), now in the Museum of St Omer, found in 1840-1845 (in connection with the making of the Nantes-Brest canal, etc.) at Glomel, in the department of the Côtes-du-Nord, Brittany. No arrow-points were found with them. De M. considers it a votive deposit and not the "cache" of a manufacturer or a trader.
- Murko** (M.) *Zur Geschichte des volkstümlichen Hauses bei den Südslawen.* (Mitt. d. Anthr. Ges. in Wien, 1905, xxxv, 308-330, 8 figs.) This first part résimés briefly the Slavonic literature of the subject, discusses Meringer's works on the Bosno-Herzegovinian house, the "High German" house in the adjacent countries, etc.
- Näcke** (P.) *Syphilis und Dementia paralytica in Bosnien.* (Neurol. Cbl., Leipzig, 1906, xxv, 157-164.) Dr N. finds that while syphilis in Bosnia (also Herzegovina and probably Dalmatia) is extraordinarily common, brain-softening and tabes dorsalis are very rare.
- Oesten** (E.) *Bericht über den Fortgang der Arbeiten zur Rethra-Forschung.* (Z. f. Ethn., Berlin, 1905, xxxvii, 981-990, 7 figs.) Résimés the results of the excavations, etc., in November, 1904, and January, 1905, at 10 different spots in Prillwitz. Remains of a bridge, and at the end of it, of a large building, not the Rethra temple, but the approach to it, were discovered. Other relics of the ancient Redarii were also found.
- Osterheide** (A.) *Zwei Kleinigkeiten zum "Martinsfest."* (Hess. Bl. f. Volksk., Lpzg., 1905, iv, 33-38.) According to O., the St Martin's day customs still bear evidence of "a contest of summer and winter." Text (two versions) and music of the "Martin song," as it is still given by children in Moers a. Rh.
- Pasquale** (M.) *Lo sviluppo fisico nei ragazzi delle scuole della Città e Provincia di Roma.* (Int. A. f. Schulhyg., Lpzg., 1906, ii, 270-297, 28 tables, 6 curves.) Gives results of investigation (stature, weight, chest-girth, strength of hand) of 2005 boys and 1530 girls, from the elementary schools of the city and province of Rome, between the ages of 6 and 15 years. Up to 10 years the boys surpass the girls in height, but from 10 to 15 the latter exceed the former, the maximum difference occurring between 12 and 13. The chest girth follows stature but with less marked differences. In strength of hand the girls are at all ages inferior to the boys—the left hand is inferior in both sexes. In height the boys of the city of Rome surpass those of

the other communes; weight shows the same run. Food, housing, work, clothing, education, and social condition thereby represented, influence physical condition and development. As remedies for unfavorable conditions Dr P. enumerates physical education, manual labor, vacation-colonies, preventive medicine, school-refection, clothing, etc. The public school ought to be a corrective and healthful institution.

- Pittard (E.)** Influence de la taille sur l'indice céphalique dans un groupe ethnique relativement pur. (Bull. Soc. d'Anth. de Paris, 1905, V^e s., VI, 279-286.) Discusses the influence of stature upon cephalic index in the case of a relatively pure group of 1205 (m. 775, w. 430) adult gypsies from the Balkan peninsula. Dr P. concludes that stature has a manifest influence on the cephalic index, dolichocephaly increasing with rise of stature. In a dolichocephalic group the tallest are the most dolichocephalic; in a brachycephalic group the tallest are on the average the least brachycephalic. According to P., the much discussed attraction of the city for those of high stature and more marked dolichocephaly ("a so-called social selection") "is explainable simply by the simultaneous occurrence of these two characters: greater development of stature due to conditions of urban life and the lowering of the cephalic index connected with such augmentation of stature."

— La couleur des yeux et des cheveux et la forme du nez chez 1270 Tsiganes des deux sexes de la péninsule des Balkans. (R. de l'Éc. d'Anth. de Paris, 1905, XV, 367-372.) Gives results of observations of color of hair and eyes and form of nose of 840 male and 430 female gypsies of the Balkan peninsula, — the earlier data of Glück are also considered. Black hair is most common in both sexes (blonds are only 0.6 per cent for men and 1 per cent for women); curly hair occurs in only 7 per cent of the men. Dark eyes occur in 87 per cent of both sexes. Straight noses occur in 57.5 per cent of the men and 70.7 per cent of the women. The aquiline nose proper is very rare.

- Regalia (E.)** Grotta Romanelli (Castro, Terra d'Otranto). Seconda Nota. Due Risposte ad una Critica. (A. p. l'Antrop., Firenze, 1905, XXXV, 113-172, 2 figs.) Discusses the various deposits of the Romanelli cave and the

remains found therein. Dr R. concludes that "nothing of genuine neolithic character has been produced from this cave." The absence of pottery and of the remains of domestic animals is proof positive. An "osteological note" (147-155) by Dr R. treats of the equidian remains from this cave, and a "reply" (157-169) by P. E. Stasi to a critique by Professor Pigorini of his article on the Romanelli finds. The figure incised upon the right wall of the cave represents, according to Dr R., some species of *Ainuu*, used for food by these prehistoric people. Another set of incised grooves on the same wall is thought to be a "fence" for large game.

- Rietz (—)** Körperentwicklung und geistige Begabung. (Z. f. Schlgshdtspl., Hamburg, 1906, XIX, 65-98, 8 figs.) Gives, with tables and curves, the results of data concerning some 20,400 boys (aged 9-20) from 19 Gymnasien, 8 Realgymnasien, 3 Oberrealschulen and 12 Realschulen in the city of Berlin, — height, weight, and yearly growth are considered. Physically the children of the poor lag behind those of the well-to-do. The author considers classes and age better criteria than the estimates of teachers. The physically fitter are generally the intellectually fitter.

- Roeder (A.)** Parsifal. (Open Ct., Chicago, 1905, XIX, 26-27.) Author argues that the people, deprived of the real Christ by the theologians, built themselves in Parsifal "a compensatory Christ."

- Rothmann (—)** Vorläufiger Bericht über die Ausgrabungen auf Flintheim, aus den Mitteln der Rudolf Virchow-Stiftung 1904. (Z. f. Ethn., Berlin, 1905, XXXVII, 996-998.) Brief account of investigation of the "culture layer" of the later neolithic settlement at "Flintheim," and notes of finds (5000 pottery fragments, 300 of which are ornamented; 6500 flint chips, 300 scrapers, 50 knives, 15 axes; fragments of grinding and rubbing stones, etc.; 5 horn axes and many worked pieces of bone, etc.; 2700 animal bones).

- Schenck (A.)** Les palafittes de Cudrefin. Vaud. Lac de Neuchâtel. Âge de bronze. (R. de l'Éc. d'Anth. de Paris, 1905, XV, 262-268, 15 figs.) Gives account of discovery of a new lacustrine "station" between Cudrefin and Port-Alban on the Vaudois shore of Lake Neuchâtel and the remains there found

(wooden piles, bronze axes, and knives, ornaments, particularly pins; hooks, buckles, bracelet, spiral, etc.). The "station" belongs to the flourishing period of the bronze age (Desor) or the Larnaudian epoch (Mortillet), contemporary with the lake-dwellings of Morges and Corcelettes.

— Étude d'ossements et crânes humains provenant de palafittes de l'âge de la pierre polie et de l'âge du bronze. Lac de Neuchâtel. Lac Léman. (Ibid., 389-407.) Treats of human bones and skulls from neolithic and bronze age lake-dwellings at Grandson (skeleton), concise (two skulls, etc.), Corcelettes (two skulls, etc.), and Anthy (skeleton), with detailed descriptions, measurements, etc. The increasing number of skulls now known from these lake-dwellings indicate, according to Dr S., the brachycephaly of the early neolithic lacustrine population; at the middle of the period (Robenhaus epoch) mesocephalic and dolichocephalic skulls appear, then in the period of transition from stone to bronze (Morgian epoch) the dolichocephals predominate; towards the end of the bronze age the characteristic Celtic brachycephals are in the majority, and they still form a very strong proportion of the population in Switzerland.

Schicker (J.) Bericht über römische Skelettfunde in der Umgebung von Laureacum. (Stzgb. d. Anthr. Ges. in Wien, 1905, xxxv, 54-55.) Brief account of several skeletons and five skulls (three dolichocephalic, two mesocephalic) found in Roman graves in the neighborhood of ancient Laureacum.

Schnippel (E.) Ueber Reste einer steinzeitlichen Ansiedlung im ostpreussischen Oberlande. (Z. f. Ethn., Berlin, 1905, xxxvii, 952-969, 20 figs.) Describes finds (flints and pottery-fragments, — numbering over 1600) at a "station" of the later stone age near Osterode, East Prussia. The ornamentation of the pottery is interesting, some shards containing finger-marks of children.

Schütte (H.) Sind die Kreisgruben unserer Watten Gräber oder Brunnen? (Corr.-Bl. d. D. Ges. f. Anthrop., München, 1905, xxxvi, 50-55, 59-61.) Adduces arguments to show that the circular pits of the Oldenburg sand-banks are wells and cisterns, not graves, — those of the North Sea sand-banks were discovered by Fr. von Alten in 1873. The pottery found in them is such as

might easily find its way into wells. This article appeared also in the *Jahrb. f. Ges. d. Hist. Oldenburg*, 1905, xiii, 149-169.

Schweinfurth (G.) Pseudoeolithen im nordischen Geschiebemergel. (Z. f. Ethn., Berlin, 1905, xxxvii, 912-914.) Briefly describes some "pseudoeoliths" from the "Kreisberg" near Neu-Brandenburg and from Neu-Strelitz, and suggests the investigation of the marl of the northern gravel-pits for interglacial flints comparable to the prehistoric Egyptian. The results hitherto have been negative.

Sebestyén (K.) Das Székler Haus des Háromszékler "Szentföld." (Anz. d. Ethn. Abt. d. Ung. Nat.-Mus., Budapest, 1905, iii, 1-7, 10 figs.) Describes the house; its construction, divisions, etc., among the Székler of the so-called "Szentföld," or "Holy Land" of the Háromszék district of Hungary, a part of the country still without railroads and least affected by modern civilization. The Székler house is bi-partite, has smoke-hole (no chimney), gable-ornaments, a fence (often of stone); stone posts have driven out oaken gates.

Sebők (S.) Die wandernde Stina im Hortobágyer Gebirge. (Ibid., 51-53, 3 figs.) Describes the transportable hut (*stina*) of the Wallachs of the Hortobágy mountains. The *stina* is not used for sleeping in, but for cooking, milking, making cheese, etc.

Szabó (I.) Weihnachten der Devár Csángó-Székler. (Ibid., 13-25, 2 figs.) Describes, with part of text and music, the "Soldier-play" and the "Bethlehem Play" recited and sung at Christmas time by the Csángó-Székler of Devár. The "Bethlehem players" are 12 in number.

Thomas (T. H.) A fisher-story and other notes from South Wales. (Folk-Lore, Lond., 1905, xvi, 337-340.) English text of a transformation-story (fish-girl lover) from Carmarthen. See also the same author's *Some Folk-Lore of South Wales* (Cardiff, 1904).

Variot (—) et **Chaumet** (—) Tables de croissance dressées en 1905 d'après les mensurations de 4400 enfants Parisiens de 1 à 15 ans. (C. R. Acad. d. Sci., Paris, 1906, cxlii, 299-301.) Gives curve and tables of stature and weight (also compares with results of Bowditch, Quételet, etc.). Foreigners, sick and abnormal individuals are not included. The annual increment of height is greatest for

boys at 14-15 years, girls at 2-3 years; least at 11-12 and 15-16 respectively. Increment of weight greatest for boys at 14-15, girls, 14-15; least at 3-4 for both sexes. The average stature of Parisian boys at 15-16 years is greater than that of Boston boys; of girls, less.

Vilibald (S.) Wogulisch-ostjakische ornamentierte Rindengefäße. (Anz. d. Ethnogr. Abt. d. Ung. Nat. Mus. 1905, III, 25-44, 4 pl., 9 figs.) Treats of the interesting ornamented bark vessels of the Wogul-Ostyaks, of which a collection of 50 pieces (12 dishes of birch-bark, 4 covers for fish-dishes, 3 "tubs," a scoop, 3 cradles, 9 cylindrical boxes of pine or birch-bark, 11 round plates, etc.), partly obtained by Dr K. Pápai and Dr J. Jankó from various parts of the Wogul and Ostyak country. The native names of the ornamental motifs are given at pp. 41-43. Among these are: sun, fish lying, worm, duck-wing, pike-tooth, horse-tooth, dog's paw, snake, pine cone, etc. The ornamentation of the Woguls and Ostyaks is "an original 'national' characteristic of these peoples, highly developed among them;" comparison with the decorative styles of the Magyars gives only negative results.

Virchow (H.) Bericht über die Oertlichkeit des "Flintholm" auf Grund eines am 11 August, 1905, unter Führung des Dr Rothmann ausgeführten Besuchs. (Z. f. Ethn., Berlin, 1905, XXXVII, 993-996.) Describes various layers (particularly the "Kulturschicht") and contents, — wood, remains of dwellings, stone, bone and horn implements, remains of food-substances, fragments of pottery, etc., — at a neolithic "station" on the north end of the island of Alsen. The passage-graves in the neighborhood have been destroyed by the present owners.

Volkov (T.) Rapport sur les voyages en Galicie orientale et en Bukovine en 1903 et 1904. (Bull. Soc. d'Anthr. de Paris, 1905, V^e s., VI, 289-294.) Brief account of author's investigations in eastern Galicia and Bukovina in 1903-1904. Gives anthropometric data (stature, cephalic index, color of hair and eyes) concerning 112 Huzuls and 126 Bórkis, notes on houses, costume, etc. As compared with the Huzuls the Bórkis are less purely mountaineers, less conservative in dress, have fewer and poorer ornaments. They belong together, however, in one group, no fundamental differences really exist-

ing. The Huzuls of Bukovina and Galicia are anthropologically one. The Galician and Bukovinan Huzuls are tallest (av. 1691 mm.) and somewhat more brachycephalic. The Bórkis of Tuka seem an intermediate group between the Huzuls and the Bórkis.

Waldstein (C.) What Herculaneum offers to archeology. (Harper's Mo., N. Y., 1905, CX, 733-738, 9 figs.) Brief notes on art objects (bronzes, marble busts, mural paintings on marble, portrait statues, manuscripts, etc.), recovered from Herculaneum. The Greek finds in the villas exemplify the glorious age of art. Piso's villa has been particularly fruitful.

Weigers (—) Ueber die paläolithischen Funde aus dem Interglazial von Hundisburg. (Z. f. Ethn., Berlin, 1905, XXXVII, 915-920, 2 figs.) Discusses the finds at Hundisburg and the opinions of Dr Favreau concerning them. W. finds no proof that diluvial man lived in Hundisburg before the last interglacial time.

Wherry (Albinia) The dancing-tower processions of Italy. (Folk-Lore, Lond., 1905, XVI, 243-259, 5 pl.) Treats of the "Rua" of Vicenza; the Macchina Triomphale or Cero, of Sta Rosa at Viterbo; the "Gigli," or Lilies, of Noia; the festival of "La Vara" at Messina; the festival of Sta Rosalia at Palermo; the elevation of the Ceri at Gubbio. The Ceri, or "dancing towers," figuring in George Eliot's *Romola*, though now extinct in Florence, still survive in many other parts of Italy. To Mrs W.'s paper Prof. N. W. Thomas adds a "Note."

Wilke (Dr) Beziehungen der west- und mitteldeutschen zur donauländischen Spiral-Mäanderkeramik. (Mitt. d. Anthr. Ges. in Wien, 1905, XXXV, 250-269, 56 figs.) Discusses the relations of the west and central German to the Danubian spiral-meander pottery. The four groups of ornamental motives (unilinear continuing volutes, double volutes, serpent-lines, doubling or multiplication of the simple two or more circled volute-line) are briefly treated. According to W. the spiral-meander pottery is distinct in origin and development from the so-called "Winkelbandkeramik." The ornamentation of the latter is synthetic in its evolution and has, as H. Schmidt pointed out, been imitated from bodily ornament; the former was analytically discovered by way of com-

plicated groups of figures. The primitive home of the spiral-meander pottery was in the lower Danubian region. Their distribution in the west was probably due to trade-relations.

Wilser (L.) Neues über den Urmenschen von Krapina. (Globus, Brunschwg., 1905, LXXXVIII, 283-284.) Résumé and critique of Gorjanovic-Kramberger's recent monograph on the primitive man of Krapina. G.-K. assumes the existence of but one old-diluvial race. W. denominates the oldest known human race of Europe *Homo primigenius*.

Zaborowski (S.) Derniers travaux sur l'anthropologie des Finlandais. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 415-419.) Résumé and critique of Westermarck's *Studier i Finlands antropologi* (Helsingfors, 1900-1904). The original dolichocephaly of the Finns has been influenced by a brachycephaly now dominant due to Lapp and Slav admixture (in the parts contiguous to present Slav areas the brachycephaly reaches 80 per cent). Finland proper has been occupied by the Finns comparatively recently.

— Pénétration des Slaves et transformation céphalique en Bohême et sur la Vistule. (Ibid., 1-17.) Discusses the migration of the Slavs (during our era brachycephaly has been the sign of the appearance and expansion of Slavonic speech; in the "centers of refuge," forests and marshes, there are still to be found indigenous dolichocephals, — Lithuanians and others) and the changes in cephalic indices in Bohemia and the region of the Vistula. Upon the Slav brachycephalic peoples have imposed themselves other brachycephals (Mongolian). Z. discusses also inhumation and incineration and their ethnic relations. The ancient Aryans inhumed their dead; the incinerating peoples were brachycephalic brunets of Asiatic origin, the custom of burning the dead being propagated simultaneously with brachycephaly.

AFRICA

Adams (C. F.) Reflex light from Africa. (Century Mag., N. Y., LXXXII, 1905, 101-111.) Gives author's impressions of Khartoum and "Black Africa," with views on the African in America, San Domingo and Egypt (a suggestive parallel), the Philippines, the "veiled protectorate," etc. Mr. Adams, who takes

Omdurman to mark "in commerce, in letters and in art, in science and in architecture, the highest point of development yet reached by any African race," says of the Soudanese in general, "in them not the slightest inherent power of development has as yet come to the surface," — they have "neither domesticated the elephant nor invented pottery." The author is very naive in some of his arguments.

African topics reviewed. (J. Afric. Soc., Lond., 1905-6, v, 87-95, 197-211.) Contains notes on direct taxation, the Aswa region of the Latuka country, the women of the Bahima (cows are the center of life with these people), a list of Kabi kings, the custom of *klonipa* among the Lokele of Stanley Falls; procedure in native courts on the Gold Coast, swearing of a chief's oath, palm-leaf notice of trespass-case; Boers and game-destruction, poisonous snakes, big game of Uganda, *klonipa* in Bantu (list of 30 Kele words and their *klonipa* equivalents).

Atlantischen (Die) Küstenstädte Marokkos. (Globus, Brunschwg., 1905, LXXXVIII, 201-205, 261-266, 12 figs.) The illustrations, taken from Montel's *Voyage au Maroc*, are of ethnographic interest.

Bailey (W. F.) The native and the white in South Africa. (Ninet. Cent., Lond., 1906, 314-330.) Discusses the problem and the various solutions proposed, — "the problem is the nearest approach to an insoluble one that can be conceived." The question in the future is "Is South Africa fitted by nature and circumstances to be a white man's land?" Meantime the native is increasing more rapidly than the white; he is beginning to think, read and write for himself. Taught that he is equal with the white man in the sight of God, he will not long be content to remain so much his inferior in the sight of man.

Baillaud (E.) The problem of agricultural development in West Africa. (J. Afric. Soc., Lond., 1905-6, v, 117-129.) Author holds that "for the present the problem of the exploitation of West Africa must be effected in a different way from that to be pursued in semi-equatorial regions, such as those of the Sudan." In West Africa the employment of manure is difficult (by reason of the heavy rains) and the use of the plough often impossible (the roots

are necessary to hold together what little soil exists).

Booth (J.) Die Nachkommen der Sulu-kaffern (Wangoni) in Deutsch-Ostafrika. (Globus, Brunschwig, 1905, LXXXVIII, 197-201, 222-226.) Treats of the history—two migrations, 1825-1860—race mixture, tribes, population, language, etc., of the Wangoni of German East Africa. The genealogical trees of the Gama and Tawarte stocks are given, also a comparative vocabulary of 55 words in Kissutu, Kingoni, Kidendauli, Kinindi and Kinyassa, also of the Kissutu slave-jargon. The Kafir descendants and the slave element number altogether some 500-700. B. spent $3\frac{1}{2}$ years in the country.

Capitan (L.) et D'Agnel (A.) Rapports de l'Égypte et de la Gaule à l'époque néolithique. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 302-316, 12 figs.) Describes a series of 24 flints from the rocky islet of Rion on the coast of Provence near Marseilles, which resemble to identity a corresponding series from Fayum in Egypt (such specimens being of a kind extremely rare outside of Egypt). The authors believe in the contemporaneity of the neolithic Egyptian population and that of the kitchen-middens and sands of the islet of Rion; also that the Egyptians came to Rion about 5000 B. C., leaving their flints as evidence of their temporary sojourn.—some of the refuse heaps antedate this period. After the Egyptians came the Ligurians (while Rion was still a peninsula) as shown by the presence of their peculiar pottery, then the Greeks, the Romans, leaving also ceramic evidence.

Cobham (H.) The Idem secret society. (J. Afric. Soc., Lond., 1905-6, v, 40-42.) The Nigerian idem society is "a body of men formed for the purpose of governing the clan, household, or family to which they belong." Each idem has a special significant name, a distinguishing badge. The head of the house is always the president, and must give an annual feast to the members. The evil character of the idem is largely exaggerated.

Cotton (J. C.) Calabar stories. (Ibid., 191-196.) Gives English texts of 10 brief stories (cosmogonic, observation-myths, animal-tales), telling why monkeys inhabit trees, where the stars came from, why some monkeys have white faces, why the pig's nose is de-

formed, where the moon came from, origin of the white race, why men die and are buried, why the shell of the tortoise is patchy, why the lizard lives in houses and why the cock crows, why the snake and the rat are enemies.

Decotse (J.) L'habitation et le village au Congo et au Chari. (L'Anthropologie, Paris, 1905, xvi, 639-656, 13 figs.) Treats of the house (Congo type, Banda type; Niellim type, Kaba type, Dendjé type; Barma type, Sao type, Tchad type,—the first group belongs to the rainy region, the third to the arid, while the second is intermediate) and the village (the natural grouping was by families,—a village begins as "some one's place"; race little influences the disposition of villages, rather the nature of the country; each has his own house; the more populous the village, the rarer the huts without enclosures; in fetishism isolation and incision are characteristic; Islam has introduced some modifications of a social nature; the Horo have "transportable villages") among the natives of the Congo and the Chari.

DeMorgan (J.) The temple of Susinak. (Harper's Mo., N. Y., 1905, cx, 875-884, 16 figs.) Describes the ruins of the temple of Susinak (in the center of the tell of Susa) and the objects therein discovered (diorite stele of Hammurabi, 2000 B. C.; stele of Naram Sin, ca. 3750 B. C.; obelisk of Munichtasu; title-deeds or kudurrus; ex-votos, offerings, etc.)

Dennett (R. E.) The Bavili alphabet restored. (J. Afric. Soc., Lond., 1905-6, v, 48-58.) Author seeks to show that "in the death shroud used in the burial of the king of Loango (French Congo) there is the living evidence of a formula of the philosophy that lies at the back of the Bavili's mind." This formula is filled in with the numbers 1-26. This article is a linguistic-metaphysic tour de force.

Duchemin (—) Les mégalithes de la Gambie. (L'Anthropologie, Paris, 1905, xvi, 633-638, 8 figs.) Describes two types of megalithic tombs (one with circle of monoliths, without a central tumulus; the other with central tumulus without monolithic inclosure; both usually fronted by a line of monoliths facing eastward); investigated by Capt. D. in 1904. They are situated at N'Gayen, Diama Passy, Keur Sam,

Kountounta, Khodiam, and Dialato. Human remains and pottery (the latter not very different from that of West African peoples to-day) were discovered. The skulls are Nigrific.

Flinders-Petrie (W. F.) The Egyptians in Sinai. An account of recent discoveries. (Harper's Mo., N. Y., 1906, CXII, 440-447, 9 figs.) Gives account of the excavations at the site of the temple of Saralit el Khadem, Sinai and the remains there discovered. The Egyptian records in this region date back to 4500 B. C. (rock sculpture of King Semerkhet of First Dynasty), and the Egyptians mined turquoise here 4000-1100 B. C. The mining-record tablet dates from 2500 B. C. Here too is to be found "the oldest example of the system of Semitic worship."

France (H.) Customs of the Awuna tribes. (J. Afric. Soc. Lond., 1905-6, v, 38-40.) Describes briefly a fetish-dance of worshippers of Hebieso (god of thunder) at Wé, a village on the Gold Coast. The dancers were women.

Gentz (—) Die englische Eingeborenepolitik in Südafrika. (Globus, Braunschwg., 1905, LXXXVIII, 266-267.) The English policy is "to gain time," and to keep for the present the good-will of the natives. The race-struggle is by no means ended and South Africa may yet hear the cry "the dark continent for the blacks."

Greene (H. C.) A great discovery in Egypt. (Century Mag., N. Y., 1905, LXXXI, 60-76, 19 figs.) Gives account of the discovery in February, 1905, in the Valley of the Kings, of the tomb of Ioua and Tioua, father and mother of Queen Tui of the eighteenth dynasty (famous for having changed the national religion), the mummies, rich furniture (the offerings to the dead were the real things themselves, not mere models). A ventilated provision trunk of reeds has quite a modern aspect.

Grenfell (Alice) Egyptian mythology and the Bible. (Monist, Chicago, 1906, XVI, 169-200, 22 figs.) Cites Old Testament (voice-creation of light, etc., precedence of night over day, maker-formula of address to the Almighty, processional boat and ark, oneness of God, washing with milk, "the beginning of wisdom," the just man) and New Testament parallels (Alpha and Omega, the golden girdle, the wool-white hair, the second death, the sea of glass, the four beasts full of eyes, the four angels at the four corners

of the earth, tears wiped away, scorpion tails, lion-headed horses with serpent-headed tails, many crowns, chaining the dragon, the lake of fire, the wall of jasper). These are "a few traces of Egyptian influence" in the Bible.

Hamy (E. T.) Note sur un gisement de labradorites taillées découvert par le Dr. Macleod au confluent de la Fénine et du Rio Grande, Guinée Portugaise. (L'Anthropologie, Paris, 1905, XVI, 625-628, 2 figs.) Brief account of the discovery in February, 1903, at the junction of the Fénine and the Rio Grande in Portuguese Guinea of some 100 flints (worked labradorites), indicating a prehistoric "station" (the negroes of the Rio Grande region have no legend about these stones, do not know their former use, and assign no peculiar property to them).

Huguet (J.) Recherches sur les habitants du Mzab. (R. de l'Éc. d'Anthrop. de Paris, 1905, xv, 18-31.) Treats of population (census of 1896-7 showed 25,300), physical characters and ethnic elements (negro slaves from all parts of Africa; Arabs; Jews; Mzabites proper; *metis*, Negro-Mzabites), anthropometric data of 10 Mzabite, 10 Jewish, 10 Arab, 10 negro children, 4 *metis* (Mzabite-Negro) and one Mzabite-Jew *metis*. The Mzabite is physically superior to the Kabyle but inferior to the Tuareg; he is more intelligent than the Arab.

Superstition, magie et sorcellerie en Afrique. (Ibid., 349-360.) Treats of fetishism, sorcerers (in Africa "the first king was a successful sorcerer"), etc. Based on Chancel, Kingsley, Fargues, Schweinfurth, Burton, Guiral, Nebout, etc. H. believes in religious evolution from fetishism (animism, naturism), through polytheism to monotheism. The most powerful elements of African society are the sorcerers, "magicians," or "medicine-men." European civilization has not weakened their power as much as is generally believed.

Johnston (A.) The colonization of British East Africa. (J. Afric. Soc. Lond., 1905-6, v, 28-37.) Discusses ethnic and political conditions. Advocates a "British first" policy for "this healthy territory." Also "administration for a time in water-tight compartments."

Junod (H. A.) The native language and native education. (Ibid., 1-14.) Argues in favor of the method of "vernacular at the base and English at the

- top." The native child "is a little Bantu, having learned in his home a nice, expressive, though not cultured, language, in which the mind of his forefathers has been incorporated." This he ought to study first, then English.
- Königin (Die) Njawingi von Mpororo.** (Globus, Brnschw., 1905, LXXXVIII, 337.) Gives, after v. Stuerner in the *Kolonialblatt* for Oct. 4, 1905, an account of a visit to Njawingi, the female ruler of Mpororo, or rather the priestess Kinkatuma, now the tool of the stronger party in the state. A real Njawingi probably once existed, and a popular belief in her divinity and immortality has arisen.
- La Chard (L. W.)** The arrow-poisons of Northern Nigeria. (*J. Afric. Soc.*, Lond., 1905-6, v, 22-27.) Gives results of examination of 7 vegetable and 3 animal (obtained from decaying tissue) poisons. The Hausa names of 18 kinds of plants used in making poison are given. For man, the natives believe that vegetable poison alone is insufficient, so the arrows are coated with the animal fluid after the vegetable has dried.
- Laloy (L.)** Le Quaternaire d'Égypte d'après M. Blanckenhorn. (*J. Anthropologie*, Paris, 1905, XVI, 664-672.) Résumé and critique of article by Blanckenhorn in the *Zeitschr. d. deutschen geol. Ges.* (Berlin) for 1901.
- MacAlpine (A. G.)** Tonga religious beliefs and customs. (*J. Afric. Soc.*, Lond., 1905-6, v, 187-190.) Describes death and beliefs concerning it (breath = soul; departed spirit; interment) among the Tonga of the south-west corner of Bandawe. Reprinted from *The Aurora* of February, 1905.
- Maguire (P.)** West African dyeing. (*Ibid.*, 151-153.) Describes briefly indigo-dyeing. Reprinted from *The Manchester Guardian*.
- Mélange (Le) des races au Congo français.** (R. de l'Éc. d'Anthr. de Paris, 1905, XV, 421-422.) Observations of M. F. Challaye, reproduced from *Le Temps* for May 27, 1905. Calls attention to the mixture of races in process at the new Brazzaville, in the French Congo.
- Melusine (A.)** Story from the Gold Coast. (*J. Afric. Soc.*, Lond., 1905-6, v, 104-107.) Gives origin myth of the Saur Nannam family of Chama on the Gold Coast, said to be descended from the Bointo. The wife disappeared when called, in abuse, a fish.
- Merrick (G.)** Languages in Northern Nigeria. (*Ibid.*, 43-47.) Author estimates that in the ranks of the Northern Nigerian Regiment some 60 or 70 languages are spoken. A list of tribes is given. This region of Africa is prolific in varieties of speech.
- Nevinson (H. W.)** The slave-trade of to-day. (Harper's Mo., N. Y., 1905, CXI, 668-676, 849-858; CXII, 114-122, 237-246, 327-337, 30 figs.) Sections 3-7, treating of Portuguese slavery and contract-labor, "the hungry country" (Cuanza to Mashiko), down to the coast (to Benguela and the sea), the slaves at sea, the islands of doom (San Thomé and Principe in the Gulf of Guinea). The complete account of Mr N.'s investigations has been published with the title *A Modern Slavery* (N. Y., 1906).
- Papillault (G.)** Crânes d'Abydos. (*Bull. Soc. d'Anthr. de Paris*, 1905, v^e s., VI, 260-269.) Describes with details of measurement the material (7 male, 4 female skulls) brought by M. Amélineau from Abydos, and compares it with Broca's Sakkarah and Chantre's El Khouan crania. The cephalic indices for the three series average, respectively, for men and women 75, 78.8; 76.2, 78.1; 73, 74.7. The so-called "Osiris skull" is probably female. Three types of skull occur, representing ethnic varieties.
- Pirle (G.)** Northeastern Rhodesia, its people and products. Part I. (*J. Afric. Soc.*, Lond., 1905-6, v, 130-147.) Historical notes, etc., on the Awemba, their chiefs, wars, etc., 1730-1896.
- Ramsay (Capt.)** Bamum. (Globus, Brnschw., 1905, 272-273, 2 figs.) Brief account of Chief Joia of Bamum in southwestern Adamaua, and his people. A wooden seat, testifying to the art of the Bamum tribes, is now in the Berlin Ethnological Museum.
- Roux (—)** Note sur un cas d'inversion sexuelle chez une Comorienne. (*Bull. Soc. d'Anthr. de Paris*, 1905, v^e s., VI, 218-219.) Gives account of a woman of the island of Maintirano, on the west coast of Madagascar, who was a *sarindahy* ("having the appearance of a man"), whose sexually inverse practices lasted beyond her sixtieth year,—the wooden phallus used by her was obtained by the author. In Madagascar there exists a sect of male sexual pervers called Sekatra,

—the individual members are termed *sarimbary* ("having the appearance of women").

Schmidt (W.) *Lieder und Gesänge der Ewhe-Neger, Gè-Dialekt.* (Anthropos, Salzburg, 1905, 1, 65-81.) First part of collection (native text, translation, music) of texts of songs in the Gè dialect of the Ewhe negroes of West Africa, — three songs of Anecho young women are given. The composers of songs, *hakpato*, often have their singers or declaimers, *hasino*. The professional singers sing loud and distinctly in contrast to the ordinary singer. Both *hakpato* and *hasino* are usually members of fetish societies and satirize women and their affairs in particular.

Smith (M. L.) Arab music. (J. Afric. Soc., Lond., 1905-6, v, 148-150.) Calls attention to the efforts made by the governor-general of Algeria to preserve Arab music. The *Toucheat Zidans* (the instrumental prelude at the beginning of the *Nuba* or opera of the *Zidans* mode) has lately been performed by military bands in Algiers. Miss S.'s article is translated from the French of M. Jules Rouanel.

Spire (F.) Rain-making in equatorial Africa. (Ibid., 15-21, 3 figs.) Brief account of "rain-making," as exemplified for the author by Ledju, the hereditary chief rain-maker of the Bari tribe, and his assistants in May, 1904. Previous to British occupation unsuccessful "rain-makers" were killed or severely punished. The wet season is the rain-making time. At other seasons the natives are incredulous.

van Thiel. *Le Sorcier dans l'Afrique équatoriale.* (Anthropos, Salzburg, 1905, 1, 49-59.) Treats of the "sorcerer" as fortune-teller and diviner (augury by hen, poison, calabash and seeds, water, etc.), priest (sacrifices, rôle of serpent; the great initiation or *kubandwa*, — described in some detail; it lasts four days; vocabulary of the *luchwezi* or ritual language), and doctor.

Weissenborn (J.) Animal-worship in Africa. (J. Afric. Soc. Lond., 1905-6, v, 167-181.) First part of a translation of Dr W.'s article in the *Deutsche Geogr. Blätter*, vol. XXVIII. In extended form the same monograph appeared in the *Int. Arch. f. Ethnogr.* for 1904. About 60 animals are considered in the last, — in the present article the goat, sheep, ox and cattle (buffalo not revered except

among Zulus), serpent (in some detail), etc.

Werner (A.) Recent work in Bantu philology. (Ibid., 59-70.) Reviews W. H. Stapleton's *Comparative Handbook of Congo Languages* (Yakusu, 1903) and *Suggestions for a Grammar of Bangala* (1903) and R. Woid's *Grammatik der Kongo-Sprache*. The Bangala is a *lingua franca* which is spreading rapidly all over that part of the Congo not influenced by the Arabs. This Bangala has lost the alliterative concord, its adjectives are indeclinable, its numerals invariable, it has given up the possessive adjective (*my now = with me*), has an "ungrammatical" present tense, etc.

— Native affairs in Natal. (Ibid., 72-86.) Résumé's data of the *Blue Book for Native Affairs* for 1904, dealing with Natal and Zululand. The evil influence of depraved Europeans, especially upon native women, the undermining of native custom and tradition by European influence (the contrast between the "Kraal girl" and the "Mission girl" is marked), the ravages of liquor, etc., are referred to. The remedy for "native lawlessness" is "to know the native."

— Notes on the Shambala and some allied languages of East Africa. (Ibid., 154-166, map.) Treats briefly of the phonetics ("la-disease," tone), and grammar (*tu* and *bu* classes, diminutive, onomatopoeic elements) of Shambala, Bondi, Zigala, and Nguru.

ASIA

Von Brandt (M.) Nach dem Kriege. Japan in politischer und wirtschaftlicher Beziehung. (Globus, Hirschweg, 1905, LXXXVIII, 213-216.) Author points out effects of the war upon Japanese character and institutions. In the recent disturbances in Tokio students were often the leader of mobs. There is danger for the "old men."

Buchner (M.) Zum Buddhatus. (Ibid., 253-254.) Discusses two peculiarities of the canonical Buddha type, the piercing of the ear-lobes and the snail-like curly locks—the former derived from the thick ear-plugs once in use. The latter may be due to the difficulty primitive art finds in imitating the human hair,—one way in Oceania and Asia was to place a number of small snail-shells on the head. To substitute dough for this and then color

it black was another step observed by the author in China.

d'Enjoy (P.) Pénalités chinoises. Peines et supplices. Suris et revision. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., vi, 247-254.) General account of Chinese punishments, — they are both numerous and diverse, and are of two sorts, those inflicted as direct punishments for offenses committed and those accessory to the former in special cases. The former number eight: whip or rod; bastinado; detention with hard labor; transportation; exile; deportation with military servitude; pillory; death. The accessory punishments are bastinado and branding. In capital cases respite and revision are possible.

Gil (S.) Fables et refranes anamitas. (Anthropos, Salzburg, 1906, i, 82-90.) First part of a collection (native text with Spanish translation) of Annamese fables (the toad and the tiger; 19 proverbs) from the province of Nam-Dinh.

Götz (W.) Wilh. Fichners Reise in Ost-Tibet. (Globus, Brunschwg., 1905, LXXXVIII, 149-154, 6 fgs.) Contains a few notes on the Tanguts.

Guedon (H.) La littérature khmère et le Bouddhisme. (Anthropos, Salzburg, 1906, i, 91-109, 6 fgs.) Lists, résumés, and comments upon the literature of the Khmers, or Cambodians (texts, authors, translators, copyists, general themes, etc.) and discusses the effects of Buddhism, — "if Brahmanism has created in Cambodia *chefs-d'œuvres* of architecture, Buddhism has killed its literature."

Haberer (—) Ueber die Menschenrassen des japanischen Reiches. (Z. f. Ethn., Berlin, 1905, XXXVII, 241-244.) Treats chiefly of the peoples of the island of Formosa, the Hakka (Kwantung Chinese) of the west coast; the Hoklo (Fukien Chinese) of the west coast towns; the Malay population (seven groups, Atayal, Vonum, Tsou, Tsalises, Pauvan, Puyuma, Ami), — the Japanese term the Malays *Schankhin* ("savages"). The independent Formosan tribes number some 115,000. The adjacent island of Kotosho or Botel Tobago is inhabited by a harmless, primitive people, ca. 3,000 souls. The Japanese themselves are a "Mongol-Malay mixture."

Iyer (L. K. A. K.) The Izhivas of Cochin. (Ethnogr. Surv. of the Cochin State, Monogr. No. 10, Emakulam, 1905, 1-79, 5 pls.) Treats of tribal

names, caste, titles, houses; marriage and sex-relations, puberty-rites, child-birth, and ceremonies connected with pregnancy and lying-in, inheritance, magic, sorcery, witchcraft, religion (Kali, Sakti, Sastha, hook-swinging, minor deities and demons, ancestor-worship, temples, serpent-worship, death and funeral ceremonies, pollution-bathing) caste-occupations, cultivation (paddy, coconut, sesamum), food, status among the Hindus, dress, etc. Contains many valuable data.

Laufer (B.) Zum Bilde des Pilgers Hsüan Tsang. (Globus, Brunschwg., 1905, LXXXVIII, 257-258.) Discusses the various paintings, images, etc., purporting to represent Hsüan Tsang. According to Chinese reports a fresco-painting of him exists in the Jo-K'ang temple at Lhasa.

— Ein angebliches Christusbild aus der T'ang-Zeit. (Ibid., 281-283, 3 fgs.) Discusses a picture reproduced by Giles in his *Introd. to the Hist. of Chinese Art*, and by him thought to represent Jesus and two Nestorian priests, and to belong to the seventh century. L. attributes it to the sixteenth century, and shows that the figures are Buddha, Lao-Tse, and Confucius.

Magniac (C. V.) A visit to the Court of the Tashi Lama. (Ninet. Cent., Lond., 1906, 255-270.) Contains notes on monasteries, Tibetan head-gear, horse-trappings, official dress, medical services, the Tashi Lama and his surroundings, the monastic city of Tashilhümpo (with the tombs of the Lamas), etc.

Moore (D. M.) Three days sojourn in Portuguese Goa. (Cheltenham Ladies' Coll. Mag., Chelt., 1906, 43-49.) Portuguese who come to Goa "do nothing," have no idea of sport, never bring their wives, and smoke continually in miserable cafés. The old city is in ruins, and the Goanese furnish the English in India with many cooks, clerics, etc.

Roux (—) Contribution à l'étude anthropologique de l'annamite tonkinois. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., vi, 321-350, 4 fgs.) Gives iconographic (10 types figured), anthropometric and anatomic (av. stat. 1622 mm.; av. weight 52.2 kilogr.; av. chest-girth 795.91, physiological and psychological (acclimation good in Delta, poor in Upper Tonkin; acquisition of language by child not more precocious than European; memory well-developed, initiative

less; intelligence lively; affective feelings less developed than among whites; resistance to pain greater among the poor classes than among the rich, but general sensibility to pain hardly less among Annamites than among Europeans; well-developed religiosity "hereditary"; patriotism marked; honesty equal to that in general of French peasants; among chief vices are gambling, opium-using, — pederasty not so common as generally believed, and pathologic data (dominant disease is malaria; typhoid fever is rare; ulcers known as "Annamite sores" are common) concerning the Annamites of Tonkin. The anthropometric data relate to 70, the medical to 146 individuals.

Tanaka (T.) *Shinranism—A Study in Japanese Buddhism.* (Hartf. Sem. Rec., Hartford, Conn., 1905-6, xvi, 35-58.) Treats of the life, teaching and doctrines of Shinran (1173-1262 A. D.), the originator of a system of Buddhism, which T. styles "a form of protestantism (Buddhism is 'but Roman Catholicism, without Christ, and in Asiatic form') believing in Amitabha Buddha (no real historical figure) instead of Jesus Christ."

Völling (A.) *Die Haartracht der Chinesen.* (Anthropos, Salzburg, 1905, 1, 60-64, 3 figs.) Describes the hair-dress of the Chinese (the same with boys and girls till 4-5 years; or at the latest 6; a sort of Franciscan tonsure for boys up to 12, then adult style; girls of 6 years unite the earlier three "tails" into one, and have front of head shaved, — other varieties are noted) young and adult. Mourning interferes with head-dress and Christianity has also initiated some changes in certain communities.

W. (R.) *Ethnische Eigentümlichkeiten des Japanerfusses.* (Globus, Brnschw., 1906, LXXXVIII, 317-318.) Résumés Buntaro and Yaso Adachi's recent studies of the Japanese foot.

White (G. E.) *Present day sacrifice in Asia Minor.* (Hartf. Sem. Rec., Hartford, Conn., 1905-6, xvi, 113-121.) In general, "the common people of our peninsula offer sacrifice voluntarily at the critical periods of life, perform the service with or without a priest or imam, and use the meat much as their own need or sense of propriety dictates; the flesh is never burned." Obligatory sacrifices are few. Each village has its sacred place, but no altar. Nominal Christians vow and kill on Saturday with sacrificial ceremony the

cock for the Sunday dinner. Sacrificial meals for the poor, prayers for rain, etc., are noted. Various Mahometan rites are referred to.

INDONESIA, AUSTRALASIA, POLYNESIA

Baessler (A.) *Abbildungen von alten beschnitzten Maori-Särgen.* (Z. f. Ethn., Berlin, 1905, XXXVII, 971-973, 3 pl., 1 fig.) Describes six old carved Maori coffins of pine now in the Auckland Museum. They represent human beings in grotesque form. Such coffins are rare in museums, and their age is estimated at over 200 years.

— *Tahitische Legenden.* (Ibid., 920-924.) Résumés Tahitian legends of the origin of the isthmus of Taravao (accounts also for the heat in the island), origin of cocoa-palm (the eyes of the dead eel can still be seen), the last cannibal on Tahiti, origin of the name *Huahine* (from *Huavahine*, a word referring to coitus).

— *Ueber Fischen auf Tahiti.* (Ibid., 924-940, 6 figs.) Treats of seasons, months, days, etc., for fishing, modes of capturing fish (with hands, with hip-cloth, with baskets; by clubbing, etc.; by poisoning the water; with spears, hooks, snares; with nets, etc.), festivals connected with fishing, etc. With the taking of the *varu*, a sort of sea-crab, goes a certain song (p. 934).

Biro (L.) *Daten zur Schifffahrt und Fischerei der Bismarck-Insulaner.* (Anz. d. Ethnogr. Abt. d. Ung. Nat. Mus., Budapest, 1905, III, 57-73, 26 figs.) Treats of navigation (the mon-canoe of the Siara region and the equipment; canoe ornamentation; the *bul* canoes of Mateison in New Hanover) and fishing (nets, — often owned by many individuals in common, or by the community; traps, spears; poisoning, etc.) among the natives of the Bismarck Islands.

Bohatta (H.) *Das javanische Drama, wajang.* (Mitt. d. Anthr. Ges. in Wien, 1905, XXXV, 278-307.) After an introduction on the history, nature, character, technique, varieties, etc., of the Javanese drama, Dr B. gives for the first time in German the complete text of a *wajang*, and for the first time in any European language the text of a Javanese sketch or *pakem*, "Irawan's Wedding." The *wajang* in question is *Lakon Abi-*

jata, based on a tale in the Mahābhārata. The wajang-play was popular in Java in the twelfth century, so its origins lie beyond that period.

Erb (J.) Ein Fund von Steinwaffen in Süd-Sumatra. (Int. A. f. Ethnogr., Leiden, 1904, xvi, 173-175, 4 figs.) Describes two stone weapons (a lance-head and a second piece of undetermined use) found in 1901 at Tjabia Negri at the edge of the mountains in the Sunge Septutuh division of Lampung.

Glufrieda-Ruggeri (V.) Crani dell' Australia, della Nuova Caledonia e delle Isole Salomone. (A. d. Soc. Rom. di Antwp., 1905, xii, Estr., pp. 31, 2 figs.) Treats, with tables of measurements of three Australian, three New Caledonian and six Solomon Islands crania. The two New Caledonian skulls are "absolutely typical of the South Pacific region." The Solomon Islands skulls are morphologically superior to the Australian, New Caledonian and Papuan and are not marked by Melanesian characters,—this indicates the presence of an "Oceanic" race in the sense of Stratz (from Indonesia to Samoa, and from Hawaii to New Zealand).

Graebner (F.) Einige Speerformen des Bismarck-Archipels. (Globus, Braunschwg., 1905, lxxxviii, 333-336, 11 figs.) Describes and compares spears from Mutschan and New-Hanover in particular; also specimens from other islands. The Mutschan and New-Hanover types are related, the former being perhaps primitive. The Mutschan and Potsdamhafen spears probably belong with the three, part North-Australian.

Krämer (A.) Die Gewinnung und die Zubereitung der Nahrung auf den Ralik-Ratak-Inseln, Marshallinseln. (Ibid., 1905, lxxxviii, 7 figs.) Treats, with some detail, of the obtaining of food and its preparation in the Ralik-Ratak archipelago. The ground-oven, cooking processes and utensils, use of bread-fruit, arrow-root, cocoa-nut, pandanus products, etc., are described. Many fish-names (also 15 native terms for ways of taking fish) are given, besides text and translation of a dolphin-catching song, notes on the capture and use of this creature, etc.

Mathews (R. H.) Some initiation ceremonies of the aborigines of Australia. (Z. f. Ethn., Berlin, 1905, xxxvii, 872-879.) Describes the Wonggumuk and Kannety ceremonies of initiation, the former with considerable detail, and for

the first time. The ceremonies include painting the novice, "fire-throwing," water-squirting, the game of "thunder," caricatures and representations sometimes obscene, "smoking" the boys, etc.

Nyuak (L.) Rites and customs of the Iban or Dyaks of Sarawak. (Anthropos, Salzburg, 1906, i, 11-23, 3 figs.) First part of account drawn up by "a Dyak, who, when a child, had acquired the knowledge of reading and writing at the Mission school at Kanovit, which he attended for several years," and translated (closely) by Very Rev. Edm. Dunn, Prefect Apostolic of Labuan and N. Borneo, who contributes a general introduction. Pages 18-22 contain in parallel columns Dyak texts and English translation descriptive of the spirits invoked by the Iban, gods and goddesses, their names, etc. The highest of all is *Batara*—then come the creator of matter, the mixer, the molder, the makers of heaven and earth, the maker of water and divider of streams, the maker of fruits, the helpers of man, etc.

Papillault (G.) Cours de sociologie. Méthodes générales. Application aux Australiens. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 243-261.) Treats the "first attempts at social organization" as revealed among the Australian aborigines. Based on Fison and Howitt, Baldwin Spencer and Gillen, etc. P. sees in tribal divisions and subdivisions only "successive limitations of promiscuity." The savage is neither a philosopher nor a machine,—he thinks under an extremely confused religious form. Group-marriage and class-division were in their beginnings confused.

Pösch (R.) Bemerkungen über die Eingeborenen von Deutsch-Neu-Guinea. (Z. d. Ges. f. Erdk. zu Berlin, 1905, 555-558.) Brief notes (from letter of 6 Aug., 1905) on the "four elemental populations" of this region: Coast peoples from Augusta river to Hilon gulf (Papua type), mountain-tribes of the Kai country, mountain-tribes of New Pomerania (Baining), people of New Mecklenburg (representing probably the purest Melanesian type).

Richter (O.) Unsere gegenwärtige Kenntnis der Ethnographie von Celebes. (Globus, Braunschwg., 1905, lxxxviii, 154-158, 171-176, 191-195.) Résumés our knowledge of the native tribes of Celebes, past and present, and discusses the chief problems of East Indian ethnology, the distribution of implements,

customs, etc. Hindu influence, according to R., has been underestimated. The Minahassa—Bolaang Mongondoo group stands in contrast to the Bugi-Macassar-Central Celebean tribes. The Toalas of Sarasin represent probably a pre-Malayan type. The Minahassa are mixed. The ethnography of Celebes offers still great difficulties.

- S.** Paul und Fritz Sarasins Forschungen in Celebes. (Ibid., 362-367, 9 fgs.) Résumés the Sarasins' recent book *Reisen in Celebes* (2 vols. Wiesbaden, 1905), treating of the Minahassa, who inhabit the east of the long northern peninsula and are completely under Dutch influence, the mountainous tribes of the Alfuros and Toradja, the Luwu country and its peoples, the Tokeja, and Tomuna and (particularly) the Toala of the Lamontjong mountains in the south, who represent the most primitive people of the island, the pile-dwellers of Limbotto and Matanna (the pile-dwellings erected probably for peaceful reasons and not merely for protection), etc.

Seidel (H.) Sprachen und Sprachgebiete in Deutsch-Mikronesien. (Ibid., 181-184.) Discusses chiefly Senff's *Sprachenkarte von Deutsch-Mikronesien* (Berlin, 1905). Fritz and Safford's Chamorro monographs are noted. S. takes exception to Senff's attempt to fix close relations between Nakuoro and Mariana islands. Kusaie has a language with some peculiar characteristics. The other linguistic areas are Ponape, etc., the central Carolines with the *exclave* on the Marianas, the west Carolines, Nukuoro, Jap with Ngulu, Palau, seven in all.

Senff (A.) Sage über die Entstehung der Inseln Map und Rumung und der Landschaft Nimigil, Japinseln. (Ibid., 139-140.) These islands are said to have been created in consequence of the amours of a native and a beautiful maiden,—partly by her mother in anger, and partly as the result of the killing of the latter while in the form of a rat.

Stephan (E.) Beiträge zur Psychologie der Bewohner von Neupommern. Nebst ethnographischen Mitteilungen über die Barriai und über die Insel Hunt, Duvor. (Ibid., 205-210, 216-221, 25 fgs., map.) Treats of physical characters, life activities, pigeon-English, power of attention (weak), song and dance, attitude towards photographs and pictures (a lion was called "dog," or "pig"),

medicine and magic, weather charms, love charms, language, weapons, implements, instruments, etc.,—these are figured and described. Worth noting is Dr S.'s statement that he detected in Selin, his guide and collector, "a fineness of feeling essentially that of a civilized man of fine feeling."

— Ein modernes Kolonialabenteuer. (Ibid., 325-331, 349-353, map.) Gives an account of the "founding" of Port Breton in New Britain by the Marquis de Rays in 1877-1881, one of the most remarkable swindles of the nineteenth century.

AMERICA

Barry (P.) Traditional ballads in New England, II-III. (J. Amer. Folk-Lore, Boston, 1905, XVIII, 191-214, 291-304.) Gives texts and variants, music, etc., of The Gypsy Laddie, Lord Randall, The Demon Lover, Young Beichan, The Elfin Knight, Lord Lovell, Bonnie James Campbell, Our Good Man, Young Hunting, Springfield Mountain, Henry Martin, from various parts of New England and Canada.

Berdau (E.) Der Mond in Volksmedizin, Sitte und Gebräuchen der mexikanischen Grenzbevölkerung der südlichen Texas. (Globus, Brnschw., 1905, LXXXVIII, 381-384.) Treats of Texan-Mexican folk-lore concerning the moon in medicine, customs, beliefs, etc., in the frontier regions of Starr and Hidalgo counties. The *parteras* (or "sages femmes"), with their lunar treatment of female diseases, moonshine-cures, due observance of moon-phases, lore of waxing and waning, sympathetic cures, etc., are described.

Boas (F.) Publications of the Jesup North Pacific Expedition. (Science, N. Y., 1906, N. S., XXIII, 102-107.) Critical résumé and review of works of Swanton (Haida ethnology), Jochelson (Koryak), Bogoras (Chukchee).

Bridge (C. A. G.) A great moral upheaval in America. Ninet. Cent., Lond., 1906, 205-218.) Emphasizes "the resemblance of the institutions of the Americans to those of their English kinsmen." Advance in the U. S. towards aristocratic conditions is noted. The English element has not been swamped by the non-English (list of Presidents, judges, heads of educational institutions, etc., show this).

Cannstatt (O.) Ueber die indianische Bevölkerung der alten Jesuitenreduktionen in Südamerika. (Z. f. Ethn., Berlin, 1905, xxxvii, 882-898.) Based on Dobritzhofer, Sepp, Burgos (pages 888-897). Describes the life and routine of the Indian population in the old Jesuit "reductions" of South America.

Carter (Oscar C. S.) The plateau country of the Southwest and La Mesa Encantada (the Enchanted mesa). (Jour. Franklin Inst., Phila., June, 1906, 451-467, ill.) Reviews the results of the expeditions to this celebrated mesa in New Mexico by Libbey and Hodge in 1897, and agrees with the latter that the evidence is in favor of the former occupancy of the height by the Acoma Indians.

Collins (Mary C.) The training of the Indian child. (So. Wkrmn., Hampton, Va., 1905, xxxiv, 390, 10 figs.) General description of training of Siouan child, — infancy, rules of conduct, chivalry, play, home life, religion, etc.

Del Campana (D.) L'arte plumaria dei Mundurucu (Brasile) e di altri popoli del Sud-America. (A. p. l'Antrop., Firenze, 1905, xxxv, 177-197, 1 pl., 19 figs.) Describes briefly 26 feather-work objects (articles of dress, ornaments, etc.) from the Mundurucu Indians of Brazil, now in the Florentine Museum, with notes on this art among other tribes, — Caribs, Arawaks, Roucouyennes, Indians of the Rio Napo, Tembé (Tupi), Ticuna (Arawak), Bororó, Caraya, Apiaká, certain peoples of ancient and modern Peru, the ancient Calchaqui, many peoples of the Gran Chaco, the Charruas of Uruguay, some Patagonian, even Fuegian tribes, etc. The highest and most special development of art in feather-work in all South America occurs in Brazil, and the Mundurucu (numbering now 1429 souls, in the region of the Tapajoz and its affluents) are the most expert of all the Indians to whom the art is known.

Dorsey (G. A.) The Ponka sun-dance. (Field Col. Mus., Anthropol. Ser., Chicago, 1905, vii, 62-88, 35 pl.) Describes preparations, ceremonies, etc., of four days, paints and costumes, etc. This "sun-seeing dance," or "mystery dance," held when the moon is at least half full, is carried out by the "thundermen," or priests, who are "a close corporation with self-perpetuating power." The Ponka sun-dance is simpler than the Arapaho and Cheyenne and is an

annual ceremony not dependent on the vow of an individual. The torture and painted dancers are also peculiar. Hypnotism is possibly employed.

Fritsch (G.) Versteinerter Aussuss von dem Mokassin eines Indianers. (Z. f. Ethn., Berlin, 1905, xxxvii, 970-971.) Describes a "petrified mocassin" from the south shore of the Little Slave lake in N. W. Canada. It may be a relic of tertiary man.

Glachetti (V.) Studi antropologici sugli antichi Peruviani. (A. p. l'Antrop., Firenze, 1905, xxxv, 201-301, 1 pl.) Gives details of description and measurement of 62 ancient Peruvian skulls (39 from Cajamarca, 6 from Lima, 6 from Tacora, 6 from "Chepen"; of the non-deformed, 14 were brachycephalic, 4 mesocephalic and one dolichocephalic) and 18 mandibles, belonging to the Regnoli collection (obtained in 1869) of the Pisa Anatomical Institute. Of the deformed skulls lengthened by the process 6 had the Aymara deformation, 16 fronto-suprainiac, 4 bregma parieto subinac or submentonian; of those broadened artificially 5 had fronto-subinac deformation and 15 were plagiocephalic. Deformation slightly diminishes the known small capacity of Peruvian skulls, which are normally brachycephalic, but made artificially hyperbrachycephalic, or mesocephalic (and even dolichocephalic), according to the degree of deformation. In the broadened skulls the face becomes platypic, in the lengthened a little more prominent. Other corresponding changes in nasal and palatal structure occur. Bibliography of 54 titles.

Hermant (P.) Évolution économique et sociale de certaines peuplades de l'Amérique du Nord. (Bull. Soc. R. Belge de Géogr., Bruxelles, 1904, Extr., pp. 110.) This well-documented monograph on the economic and social evolution of certain American Indian peoples treats of the Eskimo (6-24); "Tinnehs," i. e., Athapascans (24-41); "Nootka-Colombians," i. e., Chinooks, Oregon tribes, Shastikas, Tsinshians, Kootenays, Salish, Kwakiutl, Tlinkits, Haida, Nootkas (41-64); Californian tribes (64-70); Algonquins (70-83); Sioux (83-94); Iroquois (94-100). The topics considered are: Habitat and distribution, dwellings, economic conditions, fishing, hunting, agriculture, technique and industries, social conditions (chiefs, authority, etc.), family (number of wives,

acquisition of wives, incest, stability of marriage, family property, inheritance, levirate, adultery, chastity, age of marriage, consent of woman, conjugal affection, etc.).

Janvier (T. A.) Legends of the city of Mexico. (Harper's Mo., N. Y., 1906, CXII, 258-265, 2 figs.) English texts of 4 legends collected by the author in the city of Mexico.—legend of Don Juan Manuel, legend of the Puente del Clerigo, legend of the obedient dead nun, legend of the Callejon del Armado.

ten Kate (H.) Bemerkungen zur Mitteilung des Hrn. J. Kollmann über Rassengehirne. (Z. f. Ethn., Berlin, 1905, XXXVII, 991.) Points out that two of the brains in question are Atracanian, not Fuegian. Dr ten Kate agrees with Dr K., though less positively, in believing that as far as present data show, "there is no morphological or micro-anatomical determination of race-differences." According to ten Kate the "historic education" of which K. speaks is conditioned by "physical factors,"—psycho-physical and anthropogeographical belong together.

Kemp (J. F.) An interesting discovery of human implements in an abandoned river channel in southern Oregon. (Science, N. Y., 1906, N. S., XXIII, 434-436.) Describes finds of mortars and pestles in the auriferous gravels of the Deep Gravel Mining Co., near Waldo, Ore.

Laut (Agnes C.) Sea voyagers of the northern ocean. (Harper's Mo., N. Y., 1906, CXII, 291-298, 2 figs.) Treats of the Russian adventurers in Alaska (Shelkoff, Baranoff, etc.) and their relations with the Indian tribes.

Lehmann (W.) Altmexikanische Muschelzierate in durchbrochener Arbeit. (Globus, Brunschwg., 1905, LXXXVIII, 285-288, 4 figs.) Describes a shell ornament (with 37 perforations) from Tampico now in the Berlin Ethnological Museum. Similar ornaments are reported from Guerrero, Morelia and Tuxpan (Vera Cruz). They all resemble the "shell gorgets" of the mound region of the U. S.

— Die fünf im Kindbett gestorbenen Frauen des Westens und die fünf Götter des Südens in der mexikanischen Mythologie. (Z. f. Ethn., Berlin, 1905, XXXVII, 848-871, 19 figs.) Treats of the five women of the west who died in child-bed and the five deities of the south in Mexican mythology,—dates,

symbols, etc. The five groups on the MS. are: East (tlapco, tonatiuh in ieuayan), north (mictlan), middle or above-below (aco-tlan), west (cihuatlampa), south (uitzilampa, xochitlalpan). The basis of the article is a fine example of Zapotec picture-writing, No. 20 of the Aubin collection in the Parisian Bibliothèque Nationale, the history of which is briefly given. Boban's previous interpretation is erroneous. The five *Cuateteo* correspond to the five *Utinahua* in so far as these relate to Tezcatlipoca. The five pairs of deities belong to the cardinal-points tonalamatl.

Matthews (B.) American character. (Columbia Univ. Q., N. Y., 1905, VIII, 97-114.) Discusses the characteristics of the American people as recently described by a French correspondent of Tolstol. Prof. M. holds that the Americans are entirely devoted to money-making, hostile to art and all forms of beauty, devoid of ideals. America has contributed to civilization five things: Warred little and sought to substitute arbitration, set an example of the broadest religious toleration, made evident the wisdom of universal suffrage, welcomed all races into political freedom, diffused material well-being to a hitherto unheard-of extent.

Max Schmidt's Indianerstudien in Zentralbrasilien. (Globus, Brunschwg., 1905, LXXXVIII, 314-317, 7 figs.) Based on S.'s recent volume *Indianerstudien in Zentralbrasilien* (Berlin, 1905). Treats briefly of the Guato (bow, fire-fan), Bakairi (fire-fan, etc.) Trumai (basket), Auetô (wooden masks).

Motta (J.) O Portuguez salado no Brazil. (R. da Soc. Scient. de S. Paulo, 1905, 65-82.) General discussion of the pronunciation, vocabulary, etc., of Brazilian Portuguese, with numerous illustrative examples. M. says that the vocabulary of Brazilian Portuguese is much richer than that of European Portuguese and even purer, since the former is less favorable to the imputation of foreign expressions; its syntax is more natural, euphonic and often logical. In Brazil a national language is creating a national literature.

Nelson (H. L.) The pleasant life of Père Marquette. (Harper's Mo., N. Y., CXI, 1905, 74-82, 5 figs.) Account of some incidents in the life of the famous missionary,—the Joliet expedition. The

- "Indians, who were descended from the Aztecs, and whose language was a Mexican dialect" were mythical, as N. should have noted.
- Newell** (W. W.) In Memoriam: Washington Matthews. (J. Amer. Folk-Lore, Boston, 1905, XVIII, 245-247.) Sketch of life and appreciation of scientific labors.
- Post** (C. J.) Indian music of South America. (Harper's Mo., N. Y., 1906, CXII, 255-257.) Brief account, with musical notations, of the flute-music of the Aymara Indians of Achicuchi, Sorata, etc. Some are sung at the great fiesta of Todos Santos. One song (at the expense of the whites) is very popular with the *cholos*, or half-breeds.
- An ethnological paradox. (Harper's Mo., N. Y., 1905, CX, 910-916, 6 fgs.) Treats of the Lecco Indians of the eastern slopes of the Bolivian Andes, who, according to the author, show "distinct Malaysian resemblances",—in physical characters, muscular development, costume, etc. Their balsas, huts, etc., are described. They have no death or burial ceremonies; no hieroglyphs or even crude pictures; no musical instruments. Their language is called *Riki-riki* and they count on a basis of five five. Families are small.
- Across the highlands of the world. (Ibid., 1905, CXI, 20-26, 6 fgs.) Contains some notes on the Aymara Indians of Cocuta, Wailata, etc. In the latter village "are the real highlanders of the Andes, the makers of the chalonga and chuño that can only be prepared in the extreme cold of the high altitudes."
- Santin de Prade** (O.) Una spedizione ai "Coroados" nello Stato di S. Paola nel Brasile. (Anthropos, Salzburg, 1905, I, 35-48, 5 fgs.) Gives account of expedition of December, 1904, in search of the Coroados, the discovery of a clearing and cabin with implements, weapons etc., of various sorts. In the cabin were found the sick wife of a chief and a little girl,—all others had fled from "the hated Brazilians."
- Sapper** (K.) Aztekische Ortsnamen in Mittelamerika. (Z. f. Ethn., Berlin, 1905, XXXVII, 1002-1007.) Discusses the origin and distribution of Aztec place-names of Central America. S. believes that "outside the Pipil regions, the Aztec place-names of Central America are partly older formations of Aztec traders and partly later creations under Spanish influence." Since Aztec has been no longer an official language in the Indian countries, no new Aztec place-names have been formed.
- Das mexikanische Territorium Quintana Roo. (Globus, Brunschwig, 1905, LXXXVIII, 165-167, map.) Contains notes on the Mexican campaign of 1900-1904 against the Mayas and the organization of the new territory of Quintana Roo in eastern Yucatan, marking the final subjection of the Mayas.
- Teschauer** (C.) Mythen und alte Volksagen aus Brasilien. (Anthropos, Salzburg, 1905, I, 24-34.) First part of collection of myths and legends of the Brazilian Indians (with critical comments) relating to the *Kerupira*, *Caipora*, *Caipora*, etc., a forest demon (the K. and the hunter; the K. and the poor man), and the *Anhangá* or *Furupari*, a spirit of bad dreams (the A. and the child; the A. and the hunter). The attitude of the Indians towards these spirits is discussed. Influence of Christianity is suggested.
- Thompson** (E. H.) A page of American history. (Proc. Amer. Antiq. Soc., Worcester, Mass., 1905-6, N. S., XVII, 239-252.) Describes the participation of American adventurers in the rebellion of the Mayas of Yucatan in 1847.
- Veatch** (A. C.) On the human origin of the small mounds of the lower Mississippi valley and Texas. (Science, N. Y., 1906, N. S., XXIII, 34-36.) Cites passages from Foster, De Nadaillac, etc. Author holds that "the theory of human origin is in no way applicable to the great class of natural mounds which he has observed in Louisiana, Texas and Arkansas and along the Iron Mountain Railroad in southeastern Missouri." The situation does not serve human uses.
- Verworn** (M.) Indianische Reiseerinnerungen. (Corr.-Bl. d. D. Ges. f. Anthrop., München, 1905, XXXVI, 55-56.) Brief account of visit to various American Museums, with observations on the antiquity of the American Indian,—V. thinks he came (in possession of neolithic culture) from Eastern Asia at a comparatively late period.
- Pseudopaleolithische Steingeräten aus Nordamerika. (Ibid., 62-63.) Notes on a collection of "pseudo-paleolithic" flints obtained by the author in the neighborhood of Washington, D. C., in October, 1904.

Wardle (H. N.) The treasures of prehistoric Moundville. (Harper's Mo., N. Y., 1906, CXII, 200-210, 14 figs.) Gives account of the investigation of "an ancient American city of the copper age," near Moundville (named after it), Alabama, and describes the chief remains as discovered by C. B. Moore. In the various mounds were found human bones and votive gifts, copper gorgets, pendants, hair-ornaments, etc., water-bottles of black ware, ceremonial axes, etc.) The most remarkable specimens are "a wonderful diorite vase of the crested wood duck," a remnant of a carved shell drinking cup, etc. The scarcity of actual weapons and the abundance of ceremonial and decorative art-objects suggest that "the ancient settlement on the Black Warrior River was not military, but a center of barbaric art and religion." The settlement is plainly pre-Columbian, no European remains at all occurring.

Wissler (C.) The whirlwind and the elk in the mythology of the Dakota. (J. Amer. Folk-Lore, Boston, 1905, XVIII, 257-268.) Discusses the "whirlwind moth" and analogues; the power

of the elk (and buffalo), particularly in sexual matters (a legend illustrating the use of elk "medicine" by young men to acquire power over and possession of women is given). The buffalo and the bear are said to partake of the power of the whirlwind with some tribes. The cocoon and moth are believed to imitate the whirlwind. Problems of imitation are presented by the Dakota and their interpretations "are the results of keen psychological introspection." The whirlwind in question is "the harmless little whirl," seen every clear day on the plains.

— Ethnic types and isolation. (Science, N. Y., 1906, N. S., XXIII, 147-149.) Points out how well-known ethnographical facts (e. g., the distribution of North American aboriginal linguistic stocks) correspond in a way to the observations recorded from both animal and plant life. California may have been a nursery or incubator of living stocks. Isolation has been an important factor in the development of ethnic types. Psychological barriers to diffusion may be thus created.

ANTHROPOLOGIC MISCELLANEA

International Bureau of Ethnography. — The Field Museum of Natural History, Chicago, has published the following free translation of a Memorial adopted by the Congress at Mons, Belgium, in September, 1905, providing for the organization of an International Bureau of Ethnography. The Field Museum and the United States National Museum have been invited to become members of the provisional organizing body.

ARTICLE 1. There is founded by the countries enumerated, and by all those countries which hereafter subscribe to the present agreement, a permanent Bureau entitled the International Bureau of Ethnography.

ARTICLE 2. The object of the Bureau is the organization, at common expense, of services pertaining to the scientific documentation relative to the social state, the manners and customs of different peoples, especially peoples of inferior civilization.

The Bureau especially concerns itself with the following objects:

1. The organization of a permanent bureau of inquiry, especially by:
 - (a) The publication of ethnographic and sociologic questions, keeping account of the initiatives of different countries and of the results obtained;
 - (b) The sending out of these questions through the medium of competent authorities to all those who are apt to furnish results, especially to Colonial officials, to explorers, to missionaries, etc.
2. The publication of the results of this inquiry on a uniform plan, or on a plan as uniform as possible.
3. The distribution of the results to the different contracting States, to participating learned associations, and to the public in general, under established conditions.
4. The elaboration of an ethnographic bibliography embodying the published writings (books and articles from periodicals) in all languages and in all countries.
 - (a) Published at all times (progressive service).
 - (b) Published during the current year (service to increase as much as possible).
5. The publication of the current part of this catalogue, and the communication of the results for the anterior part.

ARTICLE 3. To this end there is established in Brussels an International Bureau of Ethnography charged with the organization of such divers services.

ARTICLE 4. This Bureau enjoys all the rights attached to a civil person after the manner of permitting him to receive gifts and bequests, and of contracting for work and publication, of civil engagements in the sphere of their privileges.

ARTICLE 5. The Bureau functions under the direction of an international committee formed by the delegates of all the contracting States. This international committee will be composed of three delegates for each nation, of whom one delegate shall have the title of National Commissioner, who shall be especially designated.

They are nominated for a term of six years.

This committee will unite at least once every two years, and consider all the decisions and conclusions relating to the International Bureau of Ethnography. It shall be empowered to convene more frequently, but at the initiative of the executive of the bureau or at the demand of four of the adhering States.

ARTICLE 6. The national commissioners shall unite at least once each year and exercise the control of administration, and especially verify the accounts.

Each commissioner will be, in place of his government, the ordinary intermediary to the International Bureau of Ethnography. He will communicate to it the results received by way of missions, of inquiries or otherwise. He will transmit the requirements of the International Bureau to his Government or Principal.

ARTICLE 7. In the interval between sessions, the execution of the scientific decisions of the international committee, and the management of the administrative affairs, shall be confined to an Executive Bureau composed of the President, Permanent Secretary, and Assistant Secretary.

For scientific affairs not foreseen, the Bureau shall take, through correspondence, the advice of the delegates of the different governments.

Likewise for administrative affairs not foreseen, the Bureau will take, through correspondence, the advice of the national commissioners of the different governments.

It shall be the duty of the Bureau to fix the dates of the meetings of the international committee, as well as to convoke the delegates of the contracting States, indicating the order of the day of meeting.

The communications to the International Bureau of Ethnography with the adhering governments will be through the intermediary of the national commissioners.

ARTICLE 8. Each country may encourage the co-operation of its own learned men and own learned societies; but the communication of this organization shall be made to the International Bureau of Ethnography.

The Bureau may enter into direct relations with all societies of ethnography, of sociology, of geography, and other scientific organizations which wish to co-operate in the realization of the aim of the institution; likewise with men of science and, in general, individuals.

ARTICLE 9. If the amount of donations, legacies, and subsidies arising from individuals or free institutions, capitalized at 3 percent, reaches at least the sixth of the allowance of the participating States, there shall be formed a committee of donors which shall be represented by two members of the international committee.

ARTICLE 10. A report on the work and the financial administration of the Bureau shall be addressed each year to the adhering governments. To the report will be annexed a statement of the preliminary budget for the following year and the program of undertakings.

ARTICLE 11. The budget of the International Bureau of Ethnography will be supported by annual assessments of the contracting members and States, by the proceeds of the sale of publications and by taxes to be calculated upon information furnished, and by gifts and legacies.

The amount of the assessments assigned annually to the Bureau by the adhering States is fixed at the minimum figure of ———. (This amount shall be fixed at the first meeting of the international committee; it will depend in effect upon divers circumstances not yet determined, especially upon the number of languages into which the documents shall be translated and published.)

The assessments, not consumed in the operations, shall be reported at the end of the year. They may serve, should there be a surplus, to constitute a reserve fund.

Above the annual assessments a capital of ——— (likewise reserved as above) shall be put the first year at the disposition of the Bureau for installation expenses. The States and Colonies which shall hereafter make use of the privileges of joining, according to Article 17, shall have to pay their share of this sum upon the basis of assessments as fixed in Article 13.

ARTICLE 12. The States and Colonies which withdraw from the Bureau at the expiration of their first term of twenty years, shall lose their participating rights in a common fund.

In case of liquidation the common fund shall be partitioned among the States and Colonies of the International Bureau after a basis of distribution as provided for in Article 13.

ARTICLE 13. The contributing part of the contracting States in the annual assessment to the International Bureau of Ethnography, as well as the first installments, is established in units upon the double base of their population and of economic activity.

As for population, a unit shall be considered as 500,000 inhabitants. As for economic activity, a unit shall be considered as 50,000,000 francs of foreign commerce, imports and exports together.

ARTICLE 14. The amount of the personal contributions of each State is rendered in an agreed proportion in subscriptions to publications calculated at a price of public sale reduced one-fifth.

The use of collections by the delegates of the central administration of the adhering States is free. It shall answer, without expense, to all their demands for information.

ARTICLE 15. The total assessment of the contracting States divided by the sum of the units attributed to each of them in execution of the preceding arrangements, will give the unit of the part leviable. It will suffice to multiply this by the number of units assigned to each of the States to find the amount of its contribution to the budget of the International Bureau of Ethnography.

ARTICLE 16. In order to place the institution in position to realize its object as exactly and completely as possible, the contracting parties engage themselves each so far as concerns its own country :

1. To execute, as rapidly as possible, the obligations springing from Article 2.

2. To address to the International Bureau :

- (a) A copy of all official publications (books or periodicals) appearing which pertain to the aim of the institution.

- (b) The list, manuscript or printed, of all works (books or pamphlets) which shall appear in the future. This list, which shall be addressed to the Bureau of Ethnography with as much regularity as possible, shall be held as official. It shall indicate for each work the name and surname of the author, or the name of the publisher, and the title of the work with eventually such necessary supplementary directions as to assure a methodic

classification by contents of the work, on examining the title, the place and date of publication, the size, number of pages, and price.

ARTICLE 17. The rule of procedure having the same obligatory force as the present convention, but within the limits of this same, shall be made by the international committee.

ARTICLE 18. Those States and Colonies which have not taken part in the present convention may be admitted later. Their accession will be made in writing to the Belgian Government which shall make the fact known to all other contracting governments. The accession shall carry in full right adhesion of all the clauses and admission to all the advantages stipulated in the present convention.

ARTICLE 19. The present convention shall go into effect the ——— and shall remain in effect during twenty years.

If twelve months before the expiration of the first twenty years, the present convention shall not disband, the Bureau shall exist during a new period of twenty years, and so on. Withdrawal shall be addressed to the Belgian Government. It shall not be in effect as regards the country which shall make it, the convention remaining executor for the other adhering countries.

Catalog of the Bishop Jade Collection.— Since the death of Mr Heber R. Bishop, three years ago, the magnificent collection of jade objects which he presented during his lifetime to the Metropolitan Museum of Art, in New York, has been finally installed, in fifteen elegant cases of gilt bronze and plate glass, in the northeast room of the second floor of the new wing of the Museum building, now known as Bishop hall. This room was arranged and decorated, under Mr Bishop's personal direction, by the noted firm of Allard Frères, of Paris, with the object of making it the finest example on this continent of the style of Louis XV. So successfully has this been done that the Bishop hall is regarded as never having been excelled even in the time of Louis XV himself.

In a previous notice of this subject¹ reference was made to the remarkable Catalog of the collection that Mr Bishop planned as early as 1886, and the researches in connection therewith that he provided for. While it is a source of profound regret that Mr Bishop did not live to see the fruition of his labors, it is with gratification that I am able to announce the final completion of this beautiful and unique work and its distribution in accordance with the terms of Mr Bishop's will. With the

¹ See *American Anthropologist*, 1903, vol. IV, pp. 111-117.

exception of six royal personages the Catalog has in no case been sent to an individual, and no copy has been or will be sold.

The work bears the title *Catalog and Investigations in Jade*. Published by Heber R. Bishop. New York, 1905. It consists of two folio volumes, printed on the finest quality of linen paper, containing 570 pages (vol. I, 277 pp.; vol. II, 293 pp.) measuring $20\frac{1}{8} \times 16\frac{1}{4}$ inches. There are 150 full-page plates (water-colors, etchings, and lithographs), and nearly 300 pen-drawings in the text. The volumes weigh, respectively, 69 and 55 pounds. This great work, the edition of which is one hundred copies, aggregated in cost about \$1,850 per copy, thus doubling that of Audubon's monumental folio, *The Birds of America*. From an artistic point of view it stands alone as perhaps the greatest work ever issued — it is certainly the greatest catalog of a collection in any branch of science or art.

The preparation and publication of the Catalog was made possible by the liberality of Mr Bishop, who spared no expense or care in its execution. About thirty scientific and art specialists in Europe and America contributed to the subject to which the work is devoted, and the illustrations were prepared with the utmost regard for accuracy and artistic merit. Chinese and Japanese artists were employed to execute many of the drawings, and experts in color were freely consulted.

The Catalog possesses a special interest from the fact that all the scientific investigations conducted in connection with it are based on specimens in the Bishop collection. The entire mineralogical and archeological researches were in charge of the writer, who spent more than twelve years in carrying on the investigation. The other collaborators are: Dr Stephen W. Bushell, G.M.C., Chinese article; Dr Robert Lilley, editor; Tadamasu Hayashi, Chinese and Japanese; Dr William Hallock, adjunct professor of physics in Columbia University; Dr D. L. Penfield, professor of mineralogy in Yale University; Dr Henry W. Foote, Sheffield Scientific School, Yale University; Dr Joseph P. Iddings, professor of petrology in the University of Chicago; Prof. F. W. Clarke, chief chemist of the United States Geological Survey; Mr Ira Harvey Woolson, adjunct professor of engineering in Columbia University; Mr Logan Waller Page, in charge of physical tests, United States Department of Agriculture; Dr Charles Palache, professor of petrography in Harvard University; Mr Louis V. Pirsson, professor of petrography in Yale University; Dr Henry S. Washington, petrographer; Prof. L. von Jaczewski, professor of mineralogy and geology in the University of Ekaterinoslav, St Petersburg; Herrn Geheimrath Dr A. B. Meyer, director of the

Königliches Zoologisches und Anthropologisch-Ethnographisches Museum at Dresden; Herrn Dr Max Bauer, director of the Mineralogisches Institut der Königlich Universität at Marburg; Mr Robinson, artist; the late Dr Thomas Wilson, curator of prehistoric archeology, United States National Museum; Dr Joseph Edkins of Shanghai; Prof. A. Damaur of Paris; Dr Ludwig Leiner, curator of the Rosegarten Museum at Constance; Mrs Zelia Nuttall of the Peabody Museum, Cambridge, Mass.; Miss Eliza R. Scidmore of Washington; Dr F. Berwerth of the Hof Museum at Vienna; Prof. Ernst Weinschenk, professor of mineralogy in the Mineralogisches Institut at München; the Field Columbian Museum at Chicago; the Smithsonian Institution at Washington; the American Museum of Natural History at New York.

Among the illustrators may be mentioned the noted French etchers Sulpis, Guerard, Richard, Piquet, LeRat, and Coutry. Twelve of the plates consist of a series of water-color sketches illustrating all the processes of jade-working, and are the product of native Chinese artists. A number of the photographic plates are by Mr C. W. Smillie of the United States National Museum. The lithographs are the work of Messrs Prang & Co. and Forbes & Co. of Boston. The letter-press was executed by Messrs Theodore L. De Vinne & Co. of New York, who regard it as the most important work among the many celebrated productions of the De Vinne press. The paper used is the product of the mills of the L. L. Brown Paper Co. of Adams, Mass. The binding of the volumes, which was intrusted to Strikeman & Co. of New York, is in full green levant, and the beautiful tooling and perfect workmanship are fully in keeping with the other features of the Catalog.

For the benefit of students who may desire to consult the Catalog, the following list of recipients is given:

Royal personages: The Prince of Wales, the Emperor of Germany, the Czar of Russia, the Queen of Holland, the Mikado of Japan, the Emperor of China.

United States: Metropolitan Museum of Art, New York; American Museum of Natural History, New York; Grolier Club, New York; New York Public Library; Columbia University, New York; Harvard University, Cambridge; Library of Congress, Washington (two copies for copyright); United States National Museum, Washington; Yale University, New Haven; Girard College, Philadelphia; Johns Hopkins University, Baltimore; Cornell University, Ithaca; Princeton University; Boston Public Library; Museum of Fine Arts, Boston; University of California, Berkeley; Golden Gate Museum, San Francisco; Medford

Library, Medford, Mass. ; Field Museum of Natural History, Chicago ; John Crerar Library, Chicago ; Art Institute, Chicago ; New York State Library, Albany ; Public Library of Saint Louis ; State Library, Richmond, Va. ; Enoch Pratt Free Library, Baltimore ; Free Library, Philadelphia ; Public Library, St. Paul ; Carnegie Museum, Pittsburg ; Brooklyn Institute of Science and Art.

Canada : Toronto University ; Public Library of Toronto ; McGill University, Montreal.

Mexico : Biblioteca Nacional, City of Mexico.

England and Scotland : British Museum Library, London ; South Kensington Museum, London ; University of London ; Bodleian Library, Oxford ; University Library, Cambridge ; Fitzwilliam Museum, Cambridge ; Birmingham Free Library ; Manchester Free Library ; Edinburgh University ; University of St Andrew's, Scotland ; University of Glasgow ; University of Aberdeen.

Germany : University of Berlin ; Königlische Kunst-Gewerbe Museum, Berlin ; Königlische Bibliothek, Berlin ; Königlisches Zoologisches und Anthropologisch-Ethnographisches Museum, Dresden ; University of Mlinich ; University of Marburg ; University of Breslau ; University of Heidelberg ; Mineralogical Institute of Hesse.

France : Bibliothèque Nationale, Paris ; Musée d'Histoire Naturelle, Paris ; Museum of the Louvre, Paris.

Austria : Die Bibliothek des Kaiserhaus, Vienna ; Hof-Kunstmuseum, Vienna ; K. K. Universitäts-Bibliothek, Vienna ; National Museum of Hungary, Budapest.

Italy : Library of the Vatican, Rome ; Biblioteca Nazionale Vittorio Emanuele, Rome ; Biblioteca Nazionale Centrale, Florence.

Spain : Biblioteca Nacional, Madrid.

Sweden : Library of the Royal Ethnographical Museum, Stockholm.

Norway : Library of the University of Christiania.

Denmark : Royal Library, Copenhagen.

Russia : Imperial Library of Russia, St Petersburg ; Library of the Summer Palace, St Petersburg ; Berg Akademie, St Petersburg ; University of Warsaw.

Japan : Imperial Museum of Tokio.

Belgium : Bibliothèque Royale, Brussels.

An extended description of the *Catalog*, with illustrations, has been published as Occasional Notes No. 11, Supplement to the Bulletin of the Metropolitan Museum of Art, New York, May, 1906.

GEORGE F. KUNZ.

American Association of Museums.— During the first week of this year the directors and the executive officers of several leading museums of this country met in Washington to discuss the advisability of forming an association of museums on lines similar to those of the Museums Association of Great Britain. As a result of this meeting it was decided that those interested directly in all museums should be invited to attend a formal organization meeting in New York city on May 15, and an invitation was extended by the American Museum of Natural History that the first meeting be held in that institution. This invitation was extended on behalf of the Washington confrères, through the pages of *Science*, by Dr W. J. Holland, director of the Carnegie Museum of Pittsburg.

On the day appointed there met in the American Museum of Natural History about one hundred museum workers, representing nearly all the prominent museums of the United States, including the Bernice Pauahi Bishop Museum of Honolulu. The meeting, which extended over two days, held two sessions on the first day in the American Museum of Natural History, and two on the following day at the Botanical Museum in Bronx Park. The first day the delegates were the guests at luncheon of the trustees of the American Museum of Natural History, and on the second day of the trustees of the Botanical Museum. The luncheon of the second day was especially notable as it was held at the Hermitage, where several short speeches were made, which did much toward strengthening the bond of relationship among the representatives of the various museums. The serious work before the delegates, which occupied the greater part of the four sessions, was the consideration of a report presented by a committee composed of Dr W. J. Holland of the Carnegie Museum, Dr William M. R. French of the Art Institute of Chicago, Professor P. M. Rea of the College of Charleston, Dr James E. Talmage of the Deseret Museum of Salt Lake City, and Dr W. P. Wilson of the Philadelphia Commercial Museum. This report was finally adopted as a preliminary constitution, to remain in force for one year and subject to revision at the next annual meeting. After the formal adoption of the constitution, the following officers were elected:

President, Dr H. C. Bumpus, Director of the American Museum of Natural History, New York. *First Vice-President*, Dr William M. R. French, Director of the Art Institute of Chicago. *Second Vice-President*, Dr W. J. Holland, Director of the Carnegie Museum, Pittsburg. *Secretary*, Dr George A. Dorsey, Curator of Anthropology, Field Museum of Natural History, Chicago. *Treasurer*, Dr W. P. Wilson, Director of the Philadelphia Commercial Museum, Philadelphia. *Councilors for*

three years, Dr Richard Rathbun, Assistant Secretary of the Smithsonian Institution in charge of the National Museum, Washington, and Professor E. S. Morse, Director of the Peabody Museum, Salem, Mass. *Councilors for two years*, Dr N. L. Britton, Director-in-chief, New York Botanical Garden, Bronx Park, New York, and Dr James E. Talmage, University of Utah, Salt Lake City. *Councilors for one year*, Mr F. A. Lucas, Curator-in-chief of the Brooklyn Institute of Arts and Sciences, and Mr William H. Goodyear, Curator of Fine Arts of the Brooklyn Institute Museum.

During the interval occupied by the organization committee in preparing the constitution and during the balloting for officers, papers were read as time permitted. The titles of the more important papers presented are as follows :

Is It Desirable to Introduce Departments of Geography in Educational Museums? Dr W J McGee.

The Two Kinds of Museums. Dr Benjamin Ives Gilman.

The Aims and Principles of the Construction and Management of Museums of Fine Arts. Dr Benjamin Ives Gilman.

Museums and Museum Work for Public Schools. Professor Henry Montgomery.

A Method of Recording Bird Records. Dr P. M. Rea.

The Educational Arrangement of Natural History Museums. Mr G. C. Baker.

Metallic Cases in Museums. Dr Milton J. Greenman.

On May 17th a meeting of the Council was held, lasting nearly the entire day, in the office of President Bumpus. At this time certain working rules were considered and adopted for the guidance of the Council during the ensuing year; plans were discussed looking toward the success of the next annual meeting, which the Association had already determined should be held in Pittsburg in accordance with an invitation extended to the Association by the director and trustees of the Carnegie Institute, the meeting to be held in May or June, as shall later be determined by the Council. At this meeting also committees, made necessary by the presentation of certain resolutions on the previous day, were appointed. Of these resolutions, the following are of general interest :

(1) The presentation of the claims of the members of the staffs of museums to the committee in charge of the Carnegie Foundation for the Promotion of Teaching. (2) The securing of such legislation as will extend to the more important museums of this country such special opportunities as are now offered to the United States National Museum by

the different departments of the national government. (3) The securing of more favorable postal rates for the publications of the Association. (4) The alliance of the Association with the National Educational Association.

The object of those originally responsible for the calling together of the Association seems to have met with unexpected and gratifying success. Not only was the attendance much larger than had been anticipated, but the feeling which prevailed throughout and characterized every stage of the proceedings was entirely in accord with the aims of the Association — the promotion of a better understanding and the affording of a closer bond of union among those engaged in museum work in America.

GEORGE A. DORSEY,

Secretary.

Mesa Verde National Park. — By act of Congress approved June 29, 1906, the Mesa Verde National Park was created. The law reads as follows:

Be it enacted [etc.], That there is hereby reserved from settlement, entry, sale, or other disposal, and set apart as a public reservation, all those certain tracts, pieces, and parcels of land lying and being situate in the State of Colorado, and within the boundaries particularly described as follows: Beginning at the northwest corner of section twenty-seven, township thirty-five north, range sixteen west, New Mexico principal meridian; thence easterly along the section lines to the southwest corner of the southeast quarter of section twenty, township thirty-five north, range fifteen west; thence northerly to the northwest corner of the southeast quarter of said section; thence easterly to the northeast corner of the southeast quarter of said section; thence northerly to the northwest corner of section twenty-one, said township; thence easterly to the northeast corner of the northwest quarter of said section; thence northerly to the northwest corner of the southeast quarter of section sixteen, said township; thence easterly to the northeast corner of the southeast quarter of section fifteen, said township; thence southerly to the southeast corner of said section; thence easterly to the southwest corner of section thirteen, said township; thence northerly to the northwest corner of the southwest quarter of said section; thence easterly to the northeast corner of the southwest quarter of said section; thence northerly to the northwest corner of the northeast quarter of said section; thence easterly to the northeast corner of said section; thence northerly to the northwest corner of the southwest quarter of section seven, township thirty-five

north, range fourteen west ; thence easterly to the northeast corner of the southwest quarter of said section ; thence northerly to the northwest corner of the southeast quarter of section six, said township ; thence easterly to the northeast corner of the southwest quarter of section four, said township ; thence southerly to the northwest corner of the southeast quarter of section nine, said township ; thence easterly to the northeast corner of the southeast quarter of said section ; thence southerly to the northwest corner of section twenty-two, said township ; thence easterly to the northeast corner of the northwest quarter of said section ; thence southerly to the northwest corner of the southeast quarter of said section ; thence easterly to the northeast corner of the southeast quarter of said section ; then southerly to the northwest quarter of section twenty-six, said township ; thence easterly to the northeast corner of the northwest quarter of said section ; thence southerly to the southeast corner of the southwest quarter of section thirty-five, said township ; thence easterly to the northeast corner of section two, township thirty-four north, range fourteen west ; thence southerly along the section line between sections one and two and between sections eleven and twelve to the northern boundary of the southern Ute Indian Reservation ; thence westerly along the northern boundary of said reservation to the center of section nine, township thirty-four north, range sixteen west ; thence northerly along the quarter-section lines to the northwest corner of the southeast quarter of section twenty-eight, township thirty-five north, range sixteen west ; thence easterly to the northeast corner of the southeast quarter of said section ; thence northerly to the northwest corner of section twenty-seven, said township, the place of beginning.

SEC. 2. That said public park shall be known as the Mesa Verde National Park, and shall be under the exclusive control of the Secretary of the Interior, whose duty it shall be to prescribe such rules and regulations and establish such service as he may deem necessary for the care and management of the same. Such regulations shall provide specifically for the preservation from injury or spoliation of the ruins and other works and relics of prehistoric or primitive man within said park : *Provided*, That all prehistoric ruins that are situated within five miles of the boundaries of said park, as herein described, on Indian lands and not on lands alienated by patent from the ownership of the United States are hereby placed under the custodianship of the Secretary of Interior, and shall be administered by the same service that is established for the custodianship of the park.

SEC. 3. That the Secretary of the Interior be, and he is hereby authorized to permit examinations, excavations, and other gathering of objects of interest within said park by any person or persons whom he may deem properly qualified to conduct such examinations, excavations, or gatherings, subject to such rules and regulations as he may prescribe: *Provided always*, That the examinations, excavations, and gatherings are undertaken only for the benefit of some reputable museum, university, college, or other recognized scientific or educational institution, with a view to increasing the knowledge of such objects and aiding the general advancement of archaeological science.

SEC. 4. That any person or persons who may otherwise in any manner willfully remove, disturb, destroy, or molest any of the ruins, mounds, buildings, graves, relics, or other evidences of an ancient civilization or other property from said park shall be deemed guilty of a misdemeanor, and upon conviction before any court having jurisdiction of such offenses shall be fined not more than one thousand dollars or imprisoned not more than twelve months, or such person or persons may be fined and imprisoned, at the discretion of the judge, and shall be required to restore the property disturbed, if possible.

Field Museum of Natural History.—The Annual Report of the Field Columbian Museum (Field Museum of Natural History), of Chicago, for 1904-05, sets forth the progress of the Museum during the year. It is learned that of the eighteen lectures delivered under the Museum's auspices during the period covered by the report, four were devoted to anthropological topics; while of the seven publications issued, all but three belong to the anthropological series, indicating strongly that in the publication of results, at least, the Department of Anthropology is far in advance of the other departments of the Museum. The same department has 600 books and 85 pamphlets in its special library, out of 36,572 volumes in the Museum, which would seem to indicate that the department is perhaps not receiving full exchange returns for its excellent series of publications. The entries in the accessions catalogues of the department total 72,551, of which 9,710 were made during the year. The former figure again shows the activity of the department, which exceeds in its entries those of any other with the exception of the department of Botany. Most of the collections procured were by purchase, a fact due in part to the St. Louis Exposition. Field work, however, was not neglected. Dr C. F. Newcombe made collections on the Northwest coast; Dr J. W. Hudson in northern California;

and an important acquisition was gained through the generosity of Mr S. L. James, who gave a collection of Egyptian antiquities and a marble sarcophagus, the latter the work of Grecian or Roman artisans. A prepared head from the Jivaro Indians of Ecuador and a small collection of stone implements from Ireland were presented by Mr H. D. Higinbotham and Mr W. E. Prager respectively. Among the objects received through exchange are 100 skulls of Navaho and other Southwestern Indians, a Haida house-post, models of Mitla and Monte Alban, and a series of busts from Siberia. From the St Louis Exposition many valuable objects were obtained, including: the Zavaleta archeological collection from Calchaqui, Argentina; a collection of Tibetan bronzes and objects illustrating East Indian ethnology; Maori feather cloaks and carvings from New Zealand; an archeological collection from Egypt; ethnological collections from German East Africa, chiefly from the Massai, including 30 life masks, a costumed Massai warrior, and a carved doorway of native design; Siamese objects, including musical instruments, armor, and weapons; a choice series of Filipino objects, largely head-gear; a collection from the Pygmy region of Africa; Haida carvings; Hupa featherwork; Cinghalese ceremonial masks; about 200 objects from cliff-dwellings; and specimens from the Ainu, the Cheyenne, and the North Pacific coast Indians. Noteworthy among other collections obtained by purchase during the year were the Frederick Starr collection of Mexican objects, numbering about 6,000, and a rare throwing-stick from Utah cliff-ruins.

In the spring lecture course of the Museum, for 1906, the following are of anthropological interest:

March 10: Some Aspects of Archeological Work in Central America, by Dr Alfred M. Tozzer of Harvard University.

March 24: How People Live in Congo Land, by Dr D. W. C. Snyder of New York City.

April 14: The Seri Indians of Sonora, by Dr W J McGee of the St Louis Public Museum.

April 28: The Monuments of a Prehistoric Race, by Mr Frederick Mosen of San Francisco.

American Museum of Natural History.—The Report of the American Museum of Natural History for 1905, which has recently appeared, announces that general progress has been made during the year in the department of anthropology. The work of the Jesup North Pacific Expedition was continued under the general direction of Dr Boas, who paid particular

attention to the publication of results, consisting of three volumes of Memoirs of great scientific interest and importance. These volumes are *Kwakiutl Texts*, by Franz Boas and George Hunt; *Contributions to the Ethnology of the Haida of Queen Charlotte Islands*, by John R. Swanton; and *Religion and Myths of the Koryak*, by Waldemar Jochelson. In addition, Roland B. Dixon's paper on *The Northern Maidu* has been published in the series of Bulletins, and a manuscript on the Shasta Indians is awaiting publication. The field work in eastern Asia having been concluded, Dr Laufer devoted his time to the classification and arrangement of the Chinese collection, and to research on the collection of ancient Chinese pottery, his manuscript on the pottery of the Han period being practically completed.

Dr Clark Wissler, acting curator of the department, has devoted special attention to the material culture of the Plains Indians and to a general ethnographic survey of North America with a view of determining the limits of the various cultural areas. Researches have been conducted by Dr William Jones among the Chippewa Indians, by Dr P. E. Goddard among the Sarsi, Mr Frank G. Speck among the Yuchi, Miss Constance Goddard Du Bois among the Mission Indians, and by Dr J. B. Walker among the Dakota. Collections have been made on the Yakima reservation by Mr Edward Sapir and among the Blackfeet by Mr D. C. Duvall. The most noteworthy collection received during the year was that obtained from the Philippine village at the Louisiana Purchase Exposition, presented to the Museum by President Jesup. Other important accessions by the department of anthropology are an African collection, the gift of Mr George S. Bowdoin; a unique mummy from South America presented by Mr J. Pierpont Morgan; a large collection of baskets and ceremonial objects, by Mr Adolph Lewisohn; a number of valuable Indian specimens, by Mrs Albert Bierstadt, and a fine collection of Socorro pottery by Mr George G. Heye. A valuable painting, "The Song of Innookshuee," made in Greenland in 1894 by Mr F. W. Stokes, was presented to the Museum by Messrs George Foster Peabody, Robert C. Ogden, and Arthur Curtiss James.

The Loubat collection of Mexican antiquities has been strengthened by exchanges with other institutions; but the most important work accomplished in the division of Mexican and Central American archeology was the painting of a cast of the sculptured side of a room in the ruins of Chichen Itza, Yucatan, through the assistance of Miss Adela Breton, of England, whose exhibition of reproductions of ancient Mexican mural

paintings at the meeting of the International Congress of Americanists at New York in 1902 was so greatly admired.

The department of anthropology of the American Museum has recently lost the services of Dr Franz Boas, Mr Adolph F. Bandelier, and Dr Berthold Laufer. These losses, with the resignation of Professor F. W. Putnam and Dr Livingston Farrand last year, cannot fail to cripple seriously the activities of an institution that has done so much during the last few years to advance anthropology in America.

The San Francisco Disaster. — Anthropologists will learn with delight, after fearing the worst, that the chief center of anthropological work in the West — the University of California — passed practically uninjured through the terrible ordeal that beset San Francisco and its vicinity in April. As is well known, the museum of the University is installed in one of the buildings of the Affiliated Colleges in San Francisco, which is fortunately so isolated that it was not affected by the conflagration, while the earthquake did almost no damage either to the building, which is constructed with a view of resisting just such disturbances, or to the collections. But for the fact that much of the time and energy of the University corps has been devoted to the relief of the sufferers, the work of the Department of Anthropology would have been continued uninterruptedly. The members of the American Anthropological Association, whose interest was so closely drawn to the University during the California meeting in August and September last, will receive this word, which comes from Professor Putnam and Doctor Kroeber, with no small degree of pleasure. The chief injury to the University lies in the temporary impairment of its income, but an institution that has accomplished so much in so short a time will no doubt overcome this obstacle in the very near future.¹

It is with regret that so much cannot be said of Leland Stanford University at Palo Alto, for while the first reports were more or less exaggerated, later and authentic information of damage to the buildings is bad enough indeed. The libraries of San Francisco are also severe sufferers. Fortunately the Bancroft Library, which was acquired by the University of California a few months ago, as announced in these pages at the time, was saved intact, although in the path of the fire. At least half of the Sutro Library, which numbered about 200,000 volumes and which for years had been in storage awaiting final disposition as a public

¹ Since these lines were put in type word has been received that the Legislature has come to the relief of the University, so that no curtailment of its corps will be necessary.

library, was saved almost miraculously in the heart of the burned district. The California Academy of Sciences, the Public Library, the Mercantile Library, and the Mechanics Institute (the last two had recently been consolidated), were destroyed, as were also the archives of the Surveyor General of California which contained Spanish documents of historical and ethnological value.

The suggestion is here offered that the American Anthropological Association and the institutions in touch with it send such reprints, duplicates, and other scientific publications (except those of the Smithsonian) as may be available, to the California Academy of Sciences, addressed in care of the Smithsonian Institution, Washington, D. C. The Smithsonian Institution announces that it will gladly forward all such publications from Washington to San Francisco without cost to the sender. Publications sent by mail may be directed for the present to the California Academy of Sciences in care of the University of California at Berkeley, which will hold them until the Academy can take steps toward rebuilding. Such action will do much toward replenishing the splendid library of the Academy that has been so great a boon to students on the Pacific coast.

Professor Putnam and the History of Religions Club. — At the March meeting of the History of Religions Club of Harvard University, a Club founded by Professor C. H. Toy some twelve or thirteen years ago, Professor F. W. Putnam, one of the charter members, was presented with an autograph letter of congratulation by the members of the Club, in recognition of the fiftieth anniversary of his connection with the University. Professor C. R. Lanman also read the following lines, written by him in honor of the occasion, and Professor Putnam, after replying, gave later in the evening some entertaining reminiscences of the University as it was fifty years ago, and of his association as a student with Louis Agassiz.

R. B. D.

Thou scion of a sturdy English stock,
Putnam of Puttenham in Surrey fair, —
Which, once transplanted to New England rock,
Thereout life-sap did wrest, and flourished there, —
Which, from John Putnam's day, in Salem quaint,
Its branches green with others interlaced,
With Fiske, Ward, Appleton, and many a saint
Whose deeds the Bay State history have graced, —
A stock, whose men, e'en from the days of yore,
Great-grandsire, grandsire, sire, and thou, O friend,
In line direct through generations four,
To Harvard's bead-roll dignity do lend, —

Yoke-fellow true, — to thee thy friends do say,
Full fifty years thy furrow hast thou plowed,
Hast borne the heat and burden of the day,
Accept from us our plaudit, hearty, loud.

Thy fathers, for three generations back,
The Bible-name of Ebenezer bore.
Thy name is Frederic ; nor doth it lack
Its fitness, if we trust grammarian's lore.

For "rich in peace," thy spirit swayed thy mind
So, that thou keptst the tenor of thy way
Unswerved by praise or blame, and so didst find
The light that lightens to the perfect day.

And not alone a Frederic art thou.
The name of Ebenezer mayst thou claim,
Thou "stone of help" in the great work that now
Hath brought our Harvard to her splendid fame.

For as we follow from those early years
The small beginnings, now so grandly grown,
We see thy hand and heart, thy hopes and fears,
In constant working, now by triumphs known.

The past of a mysterious folk to ken
From grave or shell-heap, pueblo, serpent-mound,
To read a book writ with nor ink nor pen, —
Such was thy task. We see what thou hast found,

Old as the Old World is the New World's face.
Its past no more can wholly hid remain.
For, lo, the romance of a vanished race,
Thou callest back and bidst to live again.

Preservation of Antiquities. — The bill "for the preservation of American antiquities," attention to which has already been directed in these pages, has been finally enacted into law by approval of the President on June 8. As it now stands on the statute books the act is as follows :

Be it enacted [etc.], That any person who shall appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall, upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not

more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court.

SEC. 2. That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected: *Provided*, That when such objects are situated upon a tract covered by a bona fide unperfected claim or held in private ownership, the tract, or so much thereof as may be necessary for the proper care and management of the object, may be relinquished to the Government, and the Secretary of the Interior is hereby authorized to accept the relinquishment of such tracts in behalf of the Government of the United States.

SEC. 3. That permits for the examination of ruins, the excavation of archaeological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions may be granted by the Secretaries of the Interior, Agriculture, and War to institutions which they may deem properly qualified to conduct such examination, excavation, or gathering, subject to such rules and regulations as they may prescribe: *Provided*, That the examinations, excavations, and gatherings are undertaken for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects, and that the gatherings shall be made for permanent preservation in public museums.

SEC. 4. That the Secretaries of the Departments aforesaid shall make and publish from time to time uniform rules and regulations for the purpose of carrying out the provisions of this Act.

Missouri Historical Society.—The proposal of the Missouri Historical Society to vest the beneficial ownership of all the property owned by it in the people of the State of Missouri, as previously mentioned in these pages (vol. VII, no. 3, p. 577), was unanimously adopted by the Society at a meeting held May 25th last. The clauses that are of special interest to archeologists read as follows:

"To hold all its lands, premises, improvements, collections of books, manuscripts, portraits, prehistoric remains, relics, moneys, choses in action and all its property and effects of every kind and description, now

owned or hereafter acquired, in trust for the use and benefit of the people of the State of Missouri, forever, the Society reserving to itself the right and power at all times :

" 1. To retain, at the City of St. Louis, the custody of all of said property and collections, forever ;

" 2. To borrow money for the purpose of acquiring necessary real estate, or for erecting, or altering or adding to a building upon real estate owned by it, for the housing of said collections, and as security for the repayment of any sum or sums so borrowed may encumber only its real estate ;

" 3. To sell, exchange or dispose of, as may reasonably appear to it to be for the interest of its *cestui que trust*, and in furtherance of the purposes of the Society, any or all of its real property, and any article or articles from its collections, applying the proceeds thereof to the purposes of this trust, having in view always the acquisition, preservation and exhibition of the best possible collection of such articles of historical value and interest as it is the object of the Society to collect and preserve ;

" 4. To have exclusive right to determine the policy to be observed in carrying out the purposes of this trust, controlled only by the rules of law in such cases provided."

Folk-lore Meetings in California. — The seventh meeting of the California Branch of the American Folk-Lore Society was held in South Hall, University of California, Berkeley, on Tuesday, March 20, 1906, at 8 P. M. Mr Charles Keeler presided. The following were elected to membership in the Society : Dr E. K. Putnam, Stanford University, and the Department of Education of Ontario, represented by Dr David Boyle, Toronto. Professor Vernon L. Kellogg of Stanford University gave an address, illustrated with lantern slides, on "In Samoa."

The eighth meeting of the California Branch was held at Cloyne Court, Berkeley, Tuesday, April 17, 1906, at 8 P. M., Mr Charles Keeler presiding. Dr J. W. Hudson was elected to membership in the Society. On motion, Charles Keeler, A. H. Allen, and P. E. Goddard, previously appointed by the Berkeley Folk-Lore Club as a committee to report on the feasibility of making a special study of the folk-lore of Berkeley and vicinity, were elected to represent the California Branch and to secure the coöperation of the two societies in the undertaking. A report reviewing the work of the Society during the first year of its activity, which closed with this meeting, was read by the secretary. Dr H. du R. Phelan, Captain U. S. Volunteers, gave the address of the evening on "The Peoples of the Philippine Islands," based on a sojourn of several

years in different parts of the archipelago, and illustrated with numerous ethnological specimens. At its conclusion Dr Phelan's talk was discussed by the members. The acting president thereupon announced the conclusion of the first year of the Society's existence. Forty-five persons attended the meeting.

A. L. KROEBER, *Secretary*.

Earthquakes and Tribal Movements in the Southwest.—In the Zuni creation and migration myth interpreted by Mr Cushing (Thirteenth Report of the Bureau of Ethnology, 1896), there is mention of the endeavor of the people to reach the center of "the lap of the Earth Mother." The Zuni are said to have known that they were not in the center because they experienced earthquakes, and whenever this phenomenon occurred they regarded their place of settlement as unstable and moved to another. This, Mr Cushing pointed out, explains some of the enforced tribal movements that have taken place.

It would appear, however, that another factor in connection with earthquakes has been responsible for the movements of tribes in the Southwest: this is the suppression of springs by seismic disturbances. In a number of recorded instances earthquakes have caused the flow of some springs to cease, other springs to flow more freely, and new springs to gush forth. There were noteworthy instances of all these during the great earthquake that extended through Sonora and southern Arizona in May, 1887. The vital importance of springs to the Pueblo Indians is realized by those who have examined the conditions under which these people live in the semi-arid Southwest; hence no greater calamity could befall a population than the loss of its source of water supply. Beside the terror engendered by earthquakes, it may perhaps be assumed that the disturbance and fouling of the water which accompany them would prove a sufficient incentive to the native to cause him to move to another locality.

WALTER HOUGH.

Weston Flint.—We regret to announce the death, on April 6th, of Colonel Weston Flint, lawyer, journalist, former librarian of the Washington Public Library, and for many years secretary of the Anthropological Society of Washington. Colonel Flint was born in Pike, Wyoming county, New York, July 4, 1825, entered Alfred Academy in 1855, and was graduated from Union College in 1860, receiving the degree of A.M. in 1863. After teaching in New York, Pennsylvania, and Ohio, he went to St Louis, and while looking after the sick and wounded of the Federal Army in the hospitals was appointed military agent for Ohio. In 1866-69 he was attorney for claims in St Louis, and took an active interest in

state and national politics. He became editor and publisher of the *St Louis Daily Tribune* and was the organizer and secretary of the second board of the Geological Survey of Missouri. From 1871-74 Colonel Flint served as United States Consul at Chin Kiang, China. After devoting several years to the study of law he was placed in charge of the scientific library of the United States Patent Office, a position which he held from 1877 to 1887. In 1889 he was appointed statistician of the Bureau of Education, preparing the first list of *Public, Society, and School Libraries* in the United States and Canada. On the establishment of the Washington Public Library, in 1898, Colonel Flint was selected as its first librarian, and he labored zealously for its interests until ill health compelled him to relinquish the task about a year prior to his death. He was a member of the Anthropological Society of Washington and for many years one of its most earnest workers.

Woodbury Lowery. — Students of Spanish-American history and ethnology will be grieved to learn of the death of Woodbury Lowery, at Taormina, Sicily, on April 11, after a few days' illness. Mr Lowery was born in New York City, February 17, 1853, and after graduation took a two-years' post-graduate course at Harvard, receiving the degree of A.M. in 1876. He afterward studied law in Washington, D.C., was admitted to the bar of the District and to that of the United States Supreme Court, and practised patent law from 1881 until 1897, meanwhile editing several works on the subject. Developing a keen interest in Spanish-American history, he abandoned the practice of his profession and henceforward devoted his time and energies to his newly chosen field, publishing in 1901 *The Spanish Settlements within the Present Limits of the United States*, a work valuable alike to the historian and the student of the American Indians. In 1905 Mr Lowery completed and published a second volume, covering the history of Florida from 1562 to 1574. His collection of valuable books and manuscripts relating to the early history of Spanish America is bequeathed to the Library of Congress.

Berkeley Folk-Lore Club. — The fourth regular meeting of the Berkeley Folk-Lore Club during 1905-06 was held in the Faculty Club of the University of California on Tuesday evening, April 3. President A. F. Lange presided. On motion a committee consisting of Charles Keeler, A. H. Allen, and P. E. Goddard was appointed to report on the feasibility of a special investigation of the folk-lore of Berkeley. Dr P. E. Goddard then presented a paper entitled "Some Examples of Tolowa Tales", which was discussed at length. A. L. KROEBER, *Secretary*.

THE JUSTIN WINSOR PRIZE of \$200, offered by the American Historical Association for the encouragement of historical research, will be awarded for the year 1906 to the best unpublished monograph in the field of American History that shall be submitted to the Committee of Award on or before October 1, 1906. The monograph must be based on independent and original investigation in American History, by which is meant the history of any of the British colonies in America to 1776, of other portions of the continent which have since been included in the territory of the United States, and of the United States. It may deal with any aspect of that history—social, political, constitutional, religious, economic, ethnological, military, or biographical, though in the last three instances a treatment exclusively ethnological, military, or biographical would be unfavorably received. Information respecting the conditions under which the prize is awarded will be furnished by Professor Charles H. Hull, Cornell University, Ithaca, N. Y.

THE HERBERT BAXTER ADAMS PRIZE of \$200, offered biennially by the American Historical Association, for the encouragement of historical research, will be awarded for the year 1907 to the best unpublished monograph in the field of European History that shall be submitted to the Committee of Award on or before October 1, 1907. The general conditions are similar to those regarding the Justin Winsor prize. Information will be furnished by Professor Charles Gross, 11 Putnam ave., Cambridge, Mass.

DR ALBERT ERNEST JENKS has recently finished classifying and cataloguing, for the American Museum of Natural History, a collection of more than four thousand objects from the Philippine islands, a task occupying ten weeks. Doctor Jenks has been elected to a professorship in the department of sociology of the University of Minnesota, although his work will be largely in anthropology and ethnology. The University is to be congratulated for its progressiveness in joining the ranks of the educational institutions of the country that now regard the Science of Man as an essential part of their curriculum, and for procuring the services of an instructor of such ability and experience as Doctor Jenks. While in the East Dr Jenks gave illustrated addresses on the People of the Philippines before the American Ethnological Society of New York, the Boston Branch of the American Folk-Lore Society, and the Anthropological Club of Harvard University.

DR T. MITCHELL PRUDEN, of the College of Physicians and Surgeons, Columbia University, who has spent several seasons in the study

of Southwestern archeology, has presented his collection, numbering several hundred specimens, to the Yale University Museum. The collection consists largely of pottery, textile fabrics, ornaments, and objects used in ancient religious rites. With the collection Dr Prudden gives the necessary cases, his field notes, and a map of the region drawn by himself.

A REUNION of the Congrès de l' "Alliance Française" et des Sociétés de Géographie will be held at Marseilles, September 10-15, on the occasion of the Exposition Coloniale. The meetings of the Congress, which will be international in character, are to be held in the Grand-Palais. The work of the Congress will be divided into two sections under the respective auspices of the Geographical Societies and the Association Nationale pour la Propagation de la Langue Française dans les Colonies et à l'Étranger. M. Jacques Léotard is general secretary.

REV. CHARLES JAMES WOOD, author of *Survivals in Christianity* (1892), a collection of lectures delivered by him before the Episcopal Theological Seminary of Cambridge, died suddenly in his rectory at York, Pennsylvania, May 5. Mr Wood was a graduate of Harvard (1875), had contributed papers to the Victoria Institute, the Folk-Lore Society, and other organizations, and for years was on the staff of the *Critic* and the *Outlook*.

THE TITLES presented in a communication, published in May, by the committee of organization of the International Congress of Americanists, to be held at Quebec, September 10-15, give promise of the success of the Fourteenth Session of the Congress. The titles of thirty-nine papers had been submitted, and others have since been registered.

CAPTAIN GEORG FRIEDERICI, of the German army, well known for his studies on military and American Indian subjects, is now a privat-docent at the University of Leipzig. Captain Friederici's doctor's thesis deals with scalping, head-hunting, and related war customs of the Indians of both Americas.

J. M.

DR W. C. FARABEE, of the anthropological department of Harvard University, with three students, next year will conduct a research expedition about the headwaters of the Amazon. For a time a base will be established at Arequipa, Peru. The party will be gone three years.

THE SECOND SESSION of the Congrès Préhistorique de France will be held at Vannes, Morbihan, August 21-26. Professor Adrien de Mortillet is president and Dr Marcel Baudouin (21, Rue Linné, Paris) general secretary of the committee of organization.

FOR THE benefit of members of the American Anthropological Association who desire to consult the Constitution, it may be said that the latter will be found in Volume 7, No. 4, October-December, 1905, of the *American Anthropologist*.

DR EDWARD ANTHONY SPITZKA, fellow and demonstrator of anatomy in the College of Physicians and Surgeons, Columbia University, New York, has been elected professor of general anatomy in Jefferson Medical College, Philadelphia.

DR FRANKLIN H. GIDDINGS, professor of sociology in Columbia University, has been appointed professor of the history of civilization, filling the chair founded recently by Mrs Maria H. Williamson with a fund of \$150,000.

FIELD MUSEUM OF NATURAL HISTORY. — By resolution of the board of trustees of the Field Columbian Museum, Chicago, dated November 8th last, the name of the museum was changed to Field Museum of Natural History.

DR J. W. LOWBER, F.R.G.S., member of the Royal Societies Club of Austin, Texas, and of the American Anthropological Association, has been elected to membership in the Royal Asiatic Society of London.

YALE UNIVERSITY has conferred the degree of doctor of science on Professor Henry H. Donaldson, head of the department of neurology of the Wistar Institute of Anatomy, of the University of Pennsylvania.

WE REGRET to record the death, on May 16th, of Dr Hermann Obst, Director of the Museum für Völkerkunde in Leipzig. Professor A. Bergt has received an appointment as acting director of the Museum.

MR ROBERT Y. CUMMINGS has given \$20,000 to the Field Museum of Natural History, Chicago, to defray the expenses of an ethnological study of the native tribes of the Philippine islands.

DR CHARLES PEABODY has been appointed instructor in European archeology in the Department of Anthropology of Harvard University for one year from September 1st next.

MR CLARENCE B. MOORE, of Philadelphia, has been elected a corresponding member of the Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte.

DR J. WALTER FEWKES, of the Bureau of American Ethnology, has been elected a corresponding member of the Boston Society of Natural History.

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NO. 3

RECENT PROGRESS IN AMERICAN ANTHROPOLOGY

A REVIEW OF THE ACTIVITIES OF INSTITUTIONS AND
INDIVIDUALS FROM 1902 TO 1906

PRESENTED TO THE FIFTEENTH INTERNATIONAL CONGRESS
OF AMERICANISTS, QUEBEC, 1906

Although the International Congress of Americanists has for its object the consideration of American topics, only two meetings of the body have been held in the New World. It was not until the fall of 1902 that the United States was honored with the presence of the Congress, which then convened in New York City in its Thirteenth session. On this occasion delegates and other members of the Congress had the opportunity of rounding out their knowledge of the recent progress in anthropologic research in its various branches on the part of students in the western world, and by means of excursions after the close of the session they were enabled to have a glimpse of some of the collections outside of New York that had been gathered through state and private enterprise, as well as to gain further knowledge of the methods employed in this country in anthropologic investigation.

It is not unsafe to say that in no similar period of our history has so great an advance been made in anthropologic work on the North American continent as during that which has elapsed since the Thirteenth session of the International Congress of Americanists in 1902. The national, state, and municipal governments and museums, the universities and colleges, and other scientific and educational institutions, as well as individuals, have been industriously engaged in various fields of activity—in research, collecting, in-

structing, and publishing ; new institutions have been organized and educational establishments that hitherto have had only a passing interest in anthropology have come to regard it as a necessary feature of their curricula ; and individuals have generously devoted their time and means to the advancement of those interests that the International Congress of Americanists represents.

THE AMERICAN ANTHROPOLOGICAL ASSOCIATION

It has been said that perhaps the most important single event of the present century in the history of the development of American anthropology was the formation of the American Anthropological Association. While this took place (at Pittsburg) June 30, 1902, three months before the International Congress of Americanists convened in New York, the first regular meeting of the Association was not held until December of the same year. The entire history of the new Association, therefore, except that of its birth, falls within the period that has elapsed since the New York session of the Congress.¹

While the membership is miscellaneous in character it includes practically all the anthropologists of the country. At the beginning of the year 1903 the membership numbered 175 ; it has almost doubled in the last three years, being now 271. Two presidents have served the Association since its foundation, Dr W J McGee and Professor F. W. Putnam ; two secretaries, Dr George A. Dorsey and Dr George Grant MacCurdy ; two treasurers, Dr Roland B. Dixon and Mr B. Talbot B. Hyde ; and one editor, Mr F. W. Hodge.

One of the chief purposes of the new Association is the publication of a high class journal. This purpose is being realized in the *American Anthropologist*, for which a grand prize was conferred on the Association in 1904 by the International Jury of Awards of the Louisiana Purchase Exposition, St Louis. In addition to the *Anthropologist*, a series of Memoirs is to be published, part I of volume 1 having already appeared, while part II is in press.

¹ See The American Anthropological Association, by George A. Dorsey, *American Anthropologist*, v, Jan.-Mar., 1903 ; also The Foundation of a National Anthropological Society, by Franz Boas, *Science*, xv, p. 804.

Another object of the Association is "to serve as a bond of union among American anthropologists and American anthropological organizations." In pursuance of this object the membership has been increased and both annual and special meetings have been held. Three of the annual meetings were in conjunction with those of Section H of the American Association for the Advancement of Science, at Washington, St Louis, and Philadelphia, respectively; while the fourth was held at Ithaca, N. Y.,¹ in affiliation with the Archaeological Institute of America and the American Philological Association. The special meeting held in San Francisco,² August 29 to September 2, 1905, was the most notable of all, proving as it did the truly national character of the organization in that a successful meeting of anthropologists could be held independently of other societies and on the Pacific, as well as on the Atlantic, coast. The next annual meeting of the Association will be held in New York City during Convocation Week, in affiliation with Section H of the American Association for the Advancement of Science.

Ever since its foundation the American Anthropological Association has kept in touch with the International Congress of Americanists, one of its first acts being the appointment of a delegate (Mr J. D. McGuire) to the New York Congress of 1902. It sent delegates also to the Stuttgart Congress of 1904, and will be largely represented at the Quebec Congress. A sub-committee on program for the Quebec Congress was recently named by President F. W. Putnam; it consists of the following members: George Grant MacCurdy (chairman), F. W. Hodge, Marshall H. Saville, George B. Gordon, George A. Dorsey, W J McGee, A. L. Kroeber, and Roland B. Dixon.

Much is being accomplished through standing committees, notably those on American Archeological Nomenclature, Nomenclature of Indian Linguistic Families North of Mexico, Book Reviews, and The Preservation of American Antiquities. The last named committee, acting jointly with a like committee from the Archaeological

¹ *American Anthropologist*, VIII, p. 208, Jan.-Mar., 1906.

² *American Anthropologist*, VII, p. 732, Oct.-Dec., 1905 (for amended Constitution, see p. 745).

Institute of America, has been most instrumental in framing and securing the passage of the bill for the preservation of American antiquities.

THE GOVERNMENT OF THE UNITED STATES

It is encouraging to note on the part of the National Government a better appreciation than ever before of the needs of anthropology. Among other evidences of this spirit is the recent enactment by Congress of the law, above alluded to, for the preservation of antiquities on the public domain by prohibiting the excavation thereof or the gathering of collections therefrom except for the benefit of educational and scientific institutions.¹ A step in a similar direction is the provision made by Congress at its last session for the establishment of the Mesa Verde National Park in Colorado, which contains some of the most important cliff-dwellings in the United States. For several years the General Government has taken measures for the care of the celebrated ruin of Casa Grande in Arizona, and recently Congress has provided for its further protection as well as for its excavation.

For many years the Office of Indian Affairs maintained the policy of trying to eliminate everything aboriginal from the American Indian by substituting therefor something that originated with the white man, whether or not it was adapted to the Indian's needs. But the present Commissioner of Indian Affairs, Honorable Francis E. Leupp, who has long been an earnest student of the Indian problem, finds good in the aborigines that his predecessors seem to have overlooked, and is securing the means for encouraging some of their native industries. Another step — one which every lover of the esthetic will encourage — is the beginning that the Commissioner has made toward recording the music of the Indians, much of which otherwise in a few years would have been lost forever.

SMITHSONIAN INSTITUTION

But the center of anthropological research under the auspices of the General Government is the Smithsonian Institution, which directs the investigations of the Bureau of American Ethnology and the collection and study of material by the National Museum. In view of

¹ For the text of the law, see *American Anthropologist*, VIII, p. 433, Apr.—June, 1906.

the fact that these two important agencies of anthropological work are associated with the Institution, the need for work in the anthropological field on the part of the Institution proper is not so urgent as in some other departments of knowledge in which it does not have similarly well-equipped agencies. The Smithsonian Institution, however, has at all times taken the entire field of knowledge as being within its purview, and from the date of the issuance of its first volume of *Contributions to Knowledge*—comprising the now famous work of Squier and Davis on the "Ancient Monuments of the Mississippi Valley"—down to the present time, it has through its own publications and from its funds, independently of such as were placed at its disposal by the Government, contributed to the advancement of anthropological science. It has moreover often had the opportunity, without any direct expenditure of funds, either by coöperation or by its publications, to greatly stimulate anthropological work. By means of the appendix to the Annual Report of the Board of Regents it has disseminated knowledge on this subject by republication in large editions of papers relating to anthropology. Thus in the last three Reports issued, the following papers have been published:

- The Craniology of Man and Anthropoid Apes, by N. C. Macnamara.
- The Baoussé-Roussé Explorations: Study of a new Human Type by M. Verneau, by Albert Gaudry.
- Fossil Human Remains found near Lansing, Kansas, by W. H. Holmes.
- The Wild Tribes of the Malay Peninsula, by W. W. Skeat.
- The Pygmies of the Great Congo Forest, by Sir Harry H. Johnston.
- Guam and its People, by W. E. Safford.
- Oriental Elements of Culture in the Occident, by Dr Georg Jacob.
- The Problems of Heredity and their Solution, by W. Bateson.
- John Wesley Powell [biography], by G. K. Gilbert.
- A New Theory of the Origin of Species, by A. Dastre.
- The Evolution of the Human Foot, by M. Anthony.
- Problems Arising from Variations in the Development of Skull and Brains, by Professor Johnson Symington.
- The Antiquity of the Lion in Greece, by Dr A. B. Meyer.
- The Excavations at Abusir, Egypt, by Professor Dr A. Wiedemann.
- The Ancient Hittites, by Dr Leopold Messerschmidt.
- Central American Hieroglyphic Writing, by Dr Cyrus Thomas.
- Traces of Aboriginal Operations in an Iron Mine near Leslie, Mo., by W. H. Holmes.

- Primeval Japanese, by Capt. F. Brinkley.
The Korean Language, by Homer B. Hulbert.
On Mountains and Mankind, by Douglas W. Freshfield.
Morocco, by Theobald Fischer.
Old Age, by Elie Metchnikoff.
The Contributions of American Archaeology to History, by W. H. Holmes.
Gourmia, by Harriet A. Boyd.
Archaeological Researches on the Frontiers of Argentina and Bolivia, by Eric von Rosen.
A General View of the Archaeology of the Pueblo Region, by Edgar L. Hewett.
The Painting of Human Bones among the American Aborigines, by Dr Ales Hrdlicka.
Sling Contrivances for Projectile Weapons, by F. Krause.
Materials Used to Write upon before the Invention of Printing, by Professor Albert Maire.
An Inquiry into the Population of China, by W. W. Rockhill.
Chinese Architecture, by S. W. Bushell.

In the Quarterly Issue of the *Smithsonian Contributions to Knowledge* the following anthropological papers have been published since 1902.

- Shell Ornaments from Kentucky and Mexico, by W. H. Holmes.
Preliminary Report on an Archeological Trip to the West Indies, by J. Walter Fewkes.
Korean Headdresses in the National Museum, by Foster H. Jenings.
Chinese Medicine, by James M. Flint.
Kava Drinking as Practised by the Papuans and Polynesians, by Walter Hough.
Porto Rican Stone Collars and Tripointed Idols, by J. Walter Fewkes.
The Tugda, or Rice Planter, of the Cuyunos, Philippine Islands, by E. Y. Miller.
Report on the Construction of a Vowel Organ, by E. W. Scripture.
The Contributions of American Archaeology to Human History, by W. H. Holmes.

Under the Hodgkins Fund there have been made certain physical investigations with regard to sound, which have to do with the subject of phonetics, and these again with linguistic studies. Among these may be mentioned a grant in February, 1903, to Professor E. W. Scripture, of Yale University, for the construction of a vowel machine. Professor Scripture's work was continued in 1904, and he made numerous interesting investigations.

In 1902 the Institution was represented at the Thirteenth International Congress of Americanists, held in New York, by Mr F. W. Hodge, and at the Congress of Orientalists, held in Hamburg, by Professor Paul Haupt. Mr W. H. Holmes represented the Institution at the Fourteenth International Congress of Americanists, held at Stuttgart in 1904; Professor Haupt at the Fourteenth International Congress of Orientalists, at Algiers; Dr Franz Boas at the Archeological and Historical Federation of Belgium, held at Mons.

In 1905 Dr J. Walter Fewkes, of the Bureau of American Ethnology, carried on, partly at the expense of and under the auspices of the Smithsonian Institution, an extended archeological reconnaissance in the Gulf states of Mexico. His trip was successful, giving rise to the acquisition of important data and several interesting publications.

BUREAU OF AMERICAN ETHNOLOGY

The progress of the work of the Bureau of American Ethnology during the last four years may be regarded as highly gratifying. Advancing along the general lines of research inaugurated by its organizer and first director, Major J. W. Powell, and with practically the same scientific staff that supported him at the close of his career, the investigations have reached a stage of maturity that makes apparent the wisdom of their aim and their usefulness distinctly felt from both the practical and the scientific point of view. Although the Bureau's regular staff is quite limited in number, its resources have been so managed that the best talent of the country has been enlisted in carrying to completion nearly every branch of research with which the student of the American aborigines is concerned.

Field-work — the substantial basis of progress in the Bureau's investigations — has been prosecuted in the United States, including Alaska, and in British Columbia, the West Indies, and Mexico; yet a large portion of the energies of the Bureau have been concentrated in summarizing the vast body of information relating to the tribes, previously collected by the Bureau and available through numerous other sources, and embodying this in a "Handbook of the Indians," now under the editorship of Mr F. W. Hodge, the first of the two volumes of which will soon be issued. This "taking stock" of the accumulated store of knowledge has made it possible to plan a series

of works the compilation of which is now in progress. These include handbooks of stocks and tribes; languages; physical and mental characters; physiology, pathology, and medicine; arts and industries; religion and folklore; social organization, government, laws, etc.; esthetics; games; sign language; pictography; archeology; governmental relations and welfare; geographical names; bibliographies, etc.

The Handbook of the Indians (sometimes heretofore referred to as a dictionary or cyclopedia of the tribes) may be regarded as preliminary to the more comprehensive series of works referred to, and is probably the most noteworthy general result accomplished by students of the American aborigines. This work had been in process of compilation for a number of years, and a mass of data relating to the linguistic stocks, tribes, and tribal groups had accumulated prior to the New York meeting of the Americanists; but when the time came for final revision and publication, it was found that in many respects the accumulated data were meager, defective, and generally inadequate, and the various agencies at the command of the Bureau were brought to bear in revising, elaborating, and completing the work. At the same time the scope of the Handbook of the Indians was widened to include the entire field of aboriginal history and activity north of Mexico, and all the available ethnologists and archeologists in America were invited to assist in the branches in which their respective studies made them best qualified. The response was most generous and even enthusiastic, so that within a comparatively brief time a vast amount of work was accomplished. In addition to the hundreds of brief articles by members of the regular scientific staff of the Bureau, the Handbook will contain a large number of articles on special topics by anthropologists and other students whose researches have made them the leading authorities on the subjects respectively treated. These contributors include Mr S. A. Barrett, Dr Franz Boas, Professor Herbert E. Bolton, Dr A. F. Chamberlain, Mr Stewart Culin, Dr Wm. H. Dall, Miss Anna L. Dawes, Dr Roland B. Dixon, Dr George A. Dorsey, Mr Josiah H. Dortch, Mr Wilberforce Eames, Dr Livingston Farrand, Miss Alice C. Fletcher, Mr Gerard Fowke, Dr Pliny E. Goddard, Dr George Bird Grinnell, Mr Henry W. Henshaw, Mr Edgar L. Hewett,

Dr Walter Hough, Dr Ales Hrdlicka, Dr William Jones, Dr A. L. Kroeber, Mr Joseph D. McGuire, Dr Otis T. Mason, and Dr Washington Matthews.

As the date for submitting the manuscript of the Handbook to the printer approached, it was realized that within the limited time assigned for the completion of the work it would be difficult or impossible to reach the degree of completeness, consistency, and unity requisite in a work of reference of this class, and a committee of revision was therefore organized which met three times each week during the winter and spring of 1904-05. This committee consisted of the ethnological staffs of the Bureau and the National Museum, and other resident ethnologists; while ethnologists from elsewhere when visiting Washington often gave the committee the benefit of their criticism. The substantial and valuable results of these conferences can hardly be overestimated. To make the work still more complete and authoritative it was deemed advisable to submit proofs of every article to each contributor, a plan which, while necessarily involving some delay, has been the means of promoting accuracy in a degree that otherwise would not have been possible.

A second work of prime importance initiated a number of years ago has taken final form within the last four years. This is the preparation of a Handbook of Languages under the supervision of Dr Franz Boas, honorary philologist of the Bureau. The following manuscripts for this work have been submitted: (1) Grammatical Notes on the Hupa (Athapaskan stock), by Dr P. E. Goddard; (2) Grammatical Notes on the Yuki (Yukian stock), by Dr A. L. Kroeber; (3) Grammatical Notes on the Maidu (Pujunan stock), by Dr Roland B. Dixon; (4) Grammatical Notes on the Sauk and Fox (Algonquian stock), by Dr William Jones; (5) Grammatical Notes on the Dakota (Siouan stock), by Dr John R. Swanton; (6) Grammatical Notes on the Haida (Skittagetan stock), by Dr John R. Swanton; (7) Grammatical Notes on the Tlingit (Kolutschian stock), by Dr John R. Swanton; (8) Grammatical Notes on the Kwakiutl (Wakashan stock), by Dr Franz Boas; (9) Grammatical Notes on the Chinook (Chinookan stock), by Dr Franz Boas; (10) Grammatical Notes on the Shoshoni (Shoshonean stock), by Mr

H. H. St Clair, 2d. The following manuscripts have not yet been completed: (1) Grammatical Notes on the Eskimo, by Dr Franz Boas; (2) Grammatical Notes on the Onondaga (Iroquoian stock), by Mr J. N. B. Hewitt; (3) Grammatical Notes on the Coosa (Kusan stock); and (4) Grammatical Notes on the Takelma (Takilman stock), by Mr H. H. St Clair, 2d; (5) Grammatical Notes on the Wasco (Chinookan stock), by Mr E. Sapir; (6) Grammatical Notes on the Yuchi (Uchean stock), by Mr F. G. Speck. The introductory chapters of the above-named handbook, treating especially of the morphology of the languages, will be prepared by Dr Boas.

A third branch of the Bureau's work actively prosecuted during recent years is the preparation of an archeological map and accompanying card catalogue of archeological sites of the country. This work had already been well advanced in eastern United States, as may be seen by reference to the several works of Dr Thomas on the mound-builders, and as indicated by the various explorations of the Bureau on the Atlantic slope, as yet unpublished, particularly in the tidewater districts of Maryland, Virginia, and the Carolinas, conducted by Mr William H. Holmes. Activity in this branch has recently been especially stimulated in the Pueblo region, which contains our most noteworthy antiquities, by the agitation in favor of a measure for the preservation of our national antiquities, which took final form in the law enacted at the last session of Congress; and, more especially, on account of the action of the executive departments of the Government having control of the public lands and reservations, in taking practical steps to utilize their agents and field forces in policing the ruins. With the view of facilitating this guardianship, card catalogues and maps showing all known ruins of the Southwest have been compiled by the Bureau and placed at the disposal of the departments; and a series of bulletins treating of the antiquities of the various physiographic and ethnic areas of the Southwest, intended primarily for the use of the field men, is in preparation. No. 1 of this series, *The Antiquities of the Jemez Plateau*, by Edgar L. Hewett, is already published. Others, soon to be issued, will treat of the *Antiquities of the Mesa Verde*, also by Mr Hewett; of the *Antiquities of the Little Colorado River*, by Dr J. Walter Fewkes; and of the *Antiquities of the Upper Gila*, by Dr Walter Hough.

The preparation and installation of an exhibit at the Louisiana Purchase Exposition, held in St Louis in 1904, constituted a work of considerable moment for the period under survey. After careful consideration it was decided to illustrate as the chief topic the mythic symbolism of various tribes as embodied in their decorative arts. Prominent among the concepts thus embodied are the various forms of animal and plant life, clouds, lightning, rain, sun, moon, and stars, as well as various monsters existing only in the imagination. These motives are interwoven with the thought and life of the people, and are introduced freely into their various arts. In selecting the exhibits only the most important symbolic concepts of the tribes represented were chosen, and for each of these concepts a group of exhibits was assembled, consisting of a limited number of specimens of native workmanship in carving, modeling, painting, and engraving, and a series of the native designs drawn out in colors on a flat surface and associated with the specimens in the exhibit as a means of further elucidating the strange modifications everywhere displayed. The exhibits were supplemented by a series of designs and objects selected by Dr Franz Boas to illustrate the varied symbolism associated with a given motive or design by different tribes and peoples. In addition to these systematic exhibits, two other important collections were presented. The archeological researches of Dr Fewkes in the West Indies were represented by a large series of typical relics of art in stone, bone, shell, wood, and clay, without question the most complete series yet brought together to represent the pre-Columbian culture of the Carib and Arawak peoples, who were practically exterminated by the Spanish invaders. Mr Mooney, who is engaged in the study of the heraldry system of the Great Plains tribes, prepared a series of exhibits illustrating this hitherto undeveloped branch of research.

The publications of the Bureau have been carried forward as rapidly as the exigencies of the Government press would permit. The publication of annual reports has been brought practically down to date. The Twenty-seventh report, for the fiscal year 1905-06, awaits only the completion of Mr Mooney's report on his several years' investigations among the Kiowa, Kiowa-Apache, and other Plains tribes. The Twenty-sixth report, which includes memoirs

on the ethnology of the Pima and the Tlingit tribes, by Dr Frank Russell and Dr John R. Swanton respectively, is in the printer's hands; the Twenty-fifth report, which embodies the researches of Dr Fewkes covering three years in the West Indies and one year in Mexico, is about ready for the bindery; and the same is true of the Twenty-fourth report which contains Mr Culin's extensive work on Indian Games. The Twenty-third report, embracing Mrs Stevenson's monograph on the Zuñi Indians; the Twenty-second, accompanied by Two Summers' Work in Pueblo Ruins, by Dr Fewkes, Maya Calendar Systems, by Dr Thomas, and The Hako, a Pawnee Ceremony, by Miss Fletcher; and the Twenty-first, containing Hopi Katsinas, by Dr Fewkes, and Iroquoian Cosmogony, by Mr J. N. B. Hewitt; as well as Bulletins no. 25, the Natick Dictionary, by James Hammond Trumbull; no. 28, Mexican Antiquities, by various authors; no. 29, Haida Texts, by Dr Swanton; no. 31, List of Publications of the Bureau; and no. 32, Antiquities of the Jemez Plateau, by Mr E. L. Hewett, have appeared during the period under review. The first volume of Bulletin 30, The Handbook of the Indians, which will comprise about a thousand pages, will soon be ready for the bindery.

The study of the numerous delegations of Indians visiting Washington during the winter season with the view of promoting personal or tribal interests before the departments of the Government, has been systematically pursued. The members of these delegations are conducted to the laboratories of the Bureau and the National Museum, where arrangements are made to have measurements and photographs taken, and plaster masks also are made of such as are willing to submit to the process. During the last three years approximately one thousand negatives have been added in this manner to the Bureau's great collection; masks have been made of some 40 individuals; and measurements of some 300 members of the delegations have been taken by Dr Hrdlicka.

The scientific staff of the Bureau is as follows: W. H. Holmes, chief; Franz Boas, honorary philologist; J. Walter Fewkes, J. N. B. Hewitt, F. W. Hodge, James Mooney, M. C. Stevenson, J. R. Swanton, and Cyrus Thomas, ethnologists.

NATIONAL MUSEUM

The most important event of the last few years in the history of the National Museum is the erection of the new granite building for which Congress recently appropriated \$3,500,000 and which is now in process of construction. For some time the facilities of the present building have not been adequate to meet the demands created by the steady growth of the Museum's collections, and it is confidently believed that the completion of the new structure will mark an epoch in the history of the institution in all its comprehensive and varied activities. Fortunately the material equipment of the Museum — the cases, mountings, labels, cabinets, etc., — are designed to fill the requirements of the future home of our national scientific collections. For the immediate present the plan is to work up thoroughly for publication the materials in hand.

During the fiscal years 1903-06, the Department of Anthropology made no changes in the program mapped out by Mr William H. Holmes in 1897. The ideal is the science of man, embracing biology and culture-history.

In May, 1903, under the head-curatorship of Mr Holmes, the division of physical anthropology was organized and Dr Ales Hrdlicka placed in charge. Through the efforts of the latter the division has become an efficient agency in the promotion of somatology, which, although early contemplated in the plan of the founders of the Smithsonian Institution and the National Museum, had not before this time been placed on a working basis. Despite the recognized difficulty of securing somatological material, the growth has been rapid and the results attained important. Especially worthy of mention are the facial casts and physical measurements of Indians visiting Washington, and the large comparative series of brains of man and other animals gathered since the establishment of the division. During the last three years the collection in large part has been rescued from the confusion due to the necessity of providing for the large and constantly growing body of material in the cramped quarters of the Museum building, and has been assembled, classified, and made accessible to students. The task of identifying specimens promiscuously collected in earlier years has been prosecuted, and at the same time the working up,

publication, and installation of important series furnish evidence of continued progress.

The following summary explains the methods by which the National Museum receives accessions to its collections:

By *Gifts*, either with or without restrictions.

By *Loans*, either with or without reservations.

By *Deposits* from the Smithsonian Institution and from societies. The former makes no reservations; the collections of the latter, chiefly for exhibit, are not distributed among the general series.

By *Transfers* from the several departments of the Government without restrictions. By far the most numerous and valuable of these for number and definite information are from the Bureau of American Ethnology.

By *Purchases*. No definite sums have lately been appropriated for purchases except for expositions of a national character, to supply missing links in series.

By *Specimens made in laboratories*. These include lay figures, models, casts, and photographs. They are extremely valuable, both for exhibition and for exchange.

By *Explorations* made by members of the staff, by the Bureau of American Ethnology, and, when opportunity offers, by other Government surveys and expeditions. The most valuable accessions are derived from this source.

The following table shows the increase of specimens in the various divisions of the Department of Anthropology since 1903:

	June 30, 1903.	June 30, 1906.
Physical anthropology	2,770	7,139
Ethnology	478,064	489,072
Prehistoric archeology	372,979	391,838
Historic archeology	2,223	2,405
Technology	31,093	33,041
Ceramics (art)	4,610	4,849
Graphic arts	8,896	9,324
Photography	1,800	1,860
Musical instruments	1,625	1,681
Medicine	6,889	5,031
History	43,048	45,956
Historic religions	2,769	3,000

The Museum has received numerous and valuable accessions by donation. It is difficult to single out those especially noteworthy, but among the most important may be mentioned the following :

1901-02. Wm. L. Abbott collection from Malaysia, 236 specimens ; Charles Hummel, stone implements from Pennsylvania, 581 specimens ; Prof. J. Heierlei, flint implements and bones from Switzerland, 383 specimens ; W. F. Young, archeological collection from Kentucky, 627 specimens.

1902-03. Wm. L. Abbott collection from Sumatra, the Andamans, and Nicobars, 500 specimens ; Hilder collection for Pan-American Exposition, from the Philippines, 1,500 specimens ; Mrs E. M. Chapman's collection of coins, 837 examples.

1903-04. Wm. L. Abbott collections from southwestern Malaysia, 1,377 specimens ; H. W. Seton-Karr collection of chipped stone objects from Egypt, 278 specimens ; the I. H. Harris collection of Ohio archeology, 8,533 specimens ; West Indian archeological specimens, numbering 550, collected by Dr J. Walter Fewkes for the Bureau of American Ethnology ; and the Ozark cave material collected by Mr W. H. Holmes, numbering 2,710 specimens.

1904-05. Wm. L. Abbott collections from the islands off the coast of Sumatra and the Mergui archipelago of Lower Burma, numbering 755 specimens ; Mrs Matilda Coxe Stevenson's collections from Zuñi ; Dr Walter Hough's collection of Pueblo archeology from western Socorro county, New Mexico, 863 specimens ; and many accessions in history, archeology, physical anthropology, technology, and ceramics.

1905-06. The collections from Engano, Nias, western Borneo, and western Sumatra, numbering 1,800 specimens of ethnology, and some somatology, sent by Dr W. L. Abbott ; collections of the Museum-Gates expedition of 1905, secured by Dr Walter Hough in Arizona and New Mexico, numbering 3,000 specimens ; from the Pajarito park, New Mexico, by Mr Edgar L. Hewett, for the Bureau of American Ethnology ; 458 specimens from the Philippines, presented by the Insular Commission at St Louis ; cave material from France and Algeria, sent by Jean Miguel ; ancient pottery from Sinaloa, Mexico, by E. W. Nelson ; gold objects from Colom-

bia, by Dr H. Pittier de Fábrega; Japanese archeology by Y. Hirase and P. L. Jong; pottery from Casas Grandes, Mexico, by A. H. Blackiston; collection of 569 ancient and modern arms, by the U. S. Cartridge Company; 133 historical relics, by Mrs Julian James; Jewish religious objects, by Ephraim Benguiat.

The following explorations productive of collections have been conducted:

1901-02. By Mr William H. Holmes, in a sulphur spring at Afton, Indian Territory; result, 860 ancient specimens. By Dr Walter Hough, in Arizona; result, 2,200 specimens, ancient and modern; Mr Peter G. Gates, same locality; result, 701 specimens.

1902-03. By Mr William H. Holmes, aided by Mr Gerard Fowke, at Kimmswick, Missouri; result, mound relics and fossil bones; also, in flint quarries and workshops in Carter county, Kentucky, and Harrison county, Indiana, and in a hematite mine at Leslie, Missouri. By Dr J. Walter Fewkes, of the Bureau of American Ethnology, in the islands of Santo Domingo and Cuba. By Dr W. L. Abbott, in northern Sumatra and adjacent islands; result, the gift of many hundreds of specimens to the Museum.

1903-04. By Dr Fewkes, further studies in the West Indies. By Dr Hough, field work in New Mexico and Arizona. By Mr George C. Maynard, for parts of the old locomotive "Stourbridge Lion."

1904-05. Dr Ales Hrdlicka examined the Apache and Pima in Arizona and New Mexico, continuing a physical and physiological research on Indian children; Dr W. L. Abbott visited islands off the coast of Sumatra and collected in the Mergui archipelago, forwarding from these localities 755 specimens; Dr J. Walter Fewkes continued his researches to determine the range of Antillean culture, visiting the state of Vera Cruz, Mexico; Dr Walter Hough gathered collections from the foreign exhibits at the Louisiana Purchase Exposition at St Louis; Mrs Matilda Cox Stevenson completed her studies at the pueblo of Zuñi, New Mexico, and transmitted a large ethnographic collection; Dr Edgar A. Mearns, U. S. A., added numerous Moro artifacts from Mindanao.

1905-06. Dr Ales Hrdlicka visited Florida to examine fossil human remains; Dr Walter Hough continued the field work of

the Peter Goddard Gates expedition for the National Museum, visiting the headwaters of the Gila river system in New Mexico and Arizona, procuring data on the distribution of ancient Pueblo culture and obtaining a large collection.

The anthropological publications of the Museum during the last four years, excluding numerous papers bearing on Museum subjects that do not appear in its official series of publications, are as follows :

- COVILLE, FREDERICK VERNON. [Plants used in basketry.] Rep. U. S. N. M., 1902 (1904), pp. 199-214.
 — Wokas: A Primitive Food of the Klamath Indians. *Ibid.*, pp. 725-739.
 HOLMES, WILLIAM H. Flint Implements and Fossil Remains from a Sulphur Spring at Afton, Ind. T. *Ibid.*, 1901 (1903), pp. 233-252.
 — Report on the Department of Anthropology for the year 1899-1900. *Ibid.*, 1900 (1902), pp. 21-29.
 — Anthropological Studies in California. *Ibid.*, pp. 155-187.
 — Report on the Department of Anthropology for the year 1900-01. Rep. U. S. N. M., 1901 (1903), pp. 51-61.
 — Classification and Arrangement of the Exhibits of an Anthropological Museum. *Ibid.*, pp. 253-278.
 — Report on the Department of Anthropology for the year 1901-02. *Ibid.*, 1902 (1903), pp. 53-58.
 — Report on the Exhibit of the U. S. National Museum at the Pan-American Exposition, Buffalo, N. Y., 1901. [With others.] *Ibid.*, pp. 177-231.
 — and O. T. MASON. Instructions to Collectors of Historical and Anthropological Specimens. Bull. U. S. N. M., no. 39, pt. Q, 1902, 16 pp.
 HOUGH, WALTER. A Collection of Hopi Ceremonial Pigments. *Ibid.*, 1900 (1902), pp. 463-471.
 — Archeological Field Work in Northeastern Arizona. The Museum-Gates Expedition of 1901. *Ibid.*, 1901 (1903), pp. 279-358.
 HRDLICKA, A. Directions for Collecting Information and Specimens for Physical Anthropology. Bull. U. S. N. M., no. 39, pt. R, 1904, pp. 1-25.
 — Brains and Brain Preservatives. Proc. U. S. N. M., 1905, xxx, pp. 245-320.
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The scientific staff of the Department of Anthropology of the National Museum is as follows: Otis T. Mason, head curator. Division of ethnology: Otis T. Mason, curator; Walter Hough, assistant curator; J. Walter Fewkes, collaborator. Division of physical anthropology: Ales Hrdlicka, assistant curator. Division of historic archeology: Cyrus Adler, curator; I. M. Casanowicz, assistant curator; Paul Haupt, honorary associate. Division of prehistoric archeology: W. H. Holmes, honorary curator; J. D. McGuire, collaborator; E. P. Upham, aid. Division of technology: George C. Maynard, assistant curator. Division of graphic arts: Paul Brockett, custodian. Section of photography: T. W. Smillie, custodian. Division of medicine: J. M. Flint, U. S. N. (retired), honorary curator. Division of historic religions: Cyrus Adler, honorary curator. Division of history: A. H. Clark, honorary curator; Paul Beckwith, assistant curator.

HARVARD UNIVERSITY

PEABODY MUSEUM (ANTHROPOLOGICAL SECTION OF THE UNIVERSITY MUSEUM)

When, in 1866, George Peabody founded the Peabody Museum of American Archaeology and Ethnology, he founded also the Peabody professorship with the same title, and his deed of gift requires that the Peabody professor shall have charge of the Museum. In fact the Division and the Museum are so closely allied that it is impossible to refer to one without including the other. When the Peabody professorship was established in the University, the curator of the Museum was appointed Peabody professor, and when the Division of Instruction was organized in the Faculty of Arts and Sciences, he was made chairman of the Division. Later the name of the Division was changed to Anthropology, and the Museum is now known as the Anthropological section of the University Museum. The Thaw fellowship, founded in 1890 by Mrs William Thaw, is

held by an assistant in ethnology. The Hemenway fellowship, founded in 1891 by Mrs Mary Hemenway, is to be held by a graduate student in the University but is to be awarded by the faculty of the Peabody Museum. The Winthrop scholarship, founded in 1895 by the bequest of Robert C. Winthrop, until his death the chairman of the original board of trustees of the Museum, is "assigned to the Peabody Museum" but is to be awarded by the Corporation of the University. The archeological, ethnological, and somatological collections of the Museum are used in connection with the lectures and research work in the Division, and the anthropological laboratories and library of the Museum are used extensively by the students. The officers of the Division are also officers in the Museum. Capable students preparing to become anthropologists are given practical experience in field work in connection with the expeditions of the Museum.

At the New York meeting of the Americanists, in 1902, a brief account was given of the researches, publications, and other activities of the Museum. Since that time the work in all these lines has been steadily continued.

Museum Collections. — Since 1902 the collections in all divisions of the Museum have been increased by the results of explorations, by gifts, and by purchase. Several important changes have been made in the various halls, and many specimens, plans, and models have been added. The collection of facsimiles of the sculptures and monuments illustrating the art and culture of the ancient peoples of Central America has been increased to so great an extent that the present building is not large enough to place all on exhibition. Unique and instructive pictorial exhibits have been made in several of the halls by means of photographs showing the native peoples, their costumes, habitations, and occupations, and by maps showing the distribution of each tribe or family group. The gifts received during the last few years include very extensive additions to the exhibits of basketry, so that the Museum now has a remarkably good collection, including many examples of the oldest, rarest, and finest baskets of the various tribes of North American Indians.

Explorations. — The explorations carried on by the Museum in Central America, since 1891, under the patronage of the subscribers

to the Central American Research Fund, have been continued by two expeditions in the field. The *Memoirs of the Museum*, published by means of the same Fund, furnish information in relation to these explorations so far as the results have been prepared for publication. In the summer of 1903 a Museum party explored an old village site of the Erie Indians in New York state. Each season since that time an expedition has been sent to explore some ancient Iroquoian site in that state. Good results have been obtained and a representative collection has been placed on exhibition. In the summer of 1905 an old Mandan village site in North Dakota was explored under the auspices of the Museum by a party of Harvard students. The report on this work forms the archeological section of a paper published by the Museum under the title "The Mandans." In the same year several places within the enclosure about the famous Turner group of mounds in Ohio were examined and additional information was thus procured in relation to this interesting site where the Museum carried on extended explorations more than a decade ago. During the summer of 1906 Mr Volk was employed to continue the researches relating to the further elucidation of the existence of glacial man in the Delaware valley. Other special researches of minor importance have been carried on from time to time. The Peabody Museum South American Expedition has been organized and will start for South America in October of this year. The expedition will be continued for three years, with headquarters at Arequipa, Peru. The purpose of the expedition is to carry on researches, ethnological, somatological, and linguistic, among the little-known tribes of the eastern Andean region of Peru, Bolivia, and Argentina. The expedition is under the patronage of a Harvard graduate who makes this valuable gift to the University. Dr W. C. Farabee has been granted leave of absence to take charge of the expedition as field director.

Publications. — In 1903 the Museum issued vol. II, no. 2, of its quarto illustrated *Memoirs*, forming the second part of Teobert Maler's report on his archeological researches in the Usumasinta valley, with brief references to the Lacandone Indians of that region. Seventy-eight heliotype plates illustrate the ruins and sculptures described in the volume. In 1904 vol. III, no. 1, of the *Memoirs*

was issued under the title of *Archæological Researches in Yucatan*, by Edward H. Thompson. This number includes reports on the exploration of the prehistoric ruins of Xul, Tzula, and Chacmultun. Three of the nine plates are in color and illustrate the mural paintings on the interior walls of the ruined edifice of Chacmultun. In the same year four numbers of the *Museum octavo* illustrated papers were issued: No. 7 of vol. 1, *Penitential Rite of the Ancient Mexicans*, by Zelia Nuttall; nos. 1 and 2 of vol. III, *The Cahokia and surrounding Mound Groups*, by D. I. Bushnell, Jr; and *Explorations of Mounds, Coahoma County, Mississippi*, by Charles Peabody; and no. 1 of vol. IV, *Representation of Deities of the Maya Manuscripts*, by Paul Schellhas (a translation from the German). In 1905 the third number of vol. III was issued, *Inheritance of Digital Malformation in Man*, by W. C. Farabee. In August, 1906, the fourth number of this volume was printed, *The Mandans: A Study of their Culture, Archaeology and Language*, by G. F. Will and H. J. Spinden. The annual reports of the curator have been published in the annual reports of the president and treasurer of Harvard University.

Library.—By gift and exchange of publications with other institutions the anthropological library has rapidly increased in extent and in importance. It is now especially rich in full sets of the serial anthropological publications of the world.

The faculty of the Museum is as follows: Charles W. Eliot, A.M., LL.D., president; Frederic W. Putnam, A.M., S.D., secretary; Charles P. Bowditch, A.M., Francis C. Lowell, A.B., Augustus Hemenway, A.B.

The officers and assistants in the Museum are: Frederic W. Putnam, A.M., S.D., curator of the Museum; Charles C. Willoughby, assistant curator; Roland B. Dixon, Ph.D., librarian and assistant in ethnology; Jane Smith, assistant librarian; Frances H. Mead, assistant and secretary; Alice C. Fletcher, assistant in ethnology and Thaw fellow; Zelia Nuttall, honorary assistant in Mexican archeology; William C. Farabee, Ph.D., assistant in somatology; Alfred M. Tozzer, Ph.D., assistant in Central American archeology.

THE DIVISION OF ANTHROPOLOGY

In 1890 the Division of American Archæology and Ethnology was established at Harvard. For four years it was open only to graduates taking the research course in American archeology and ethnology given by the Peabody professor. In 1894 a course in general anthropology was added for graduates and undergraduates, and an instructor in anthropology was appointed to aid the Peabody professor. The scope of the Division was extended from year to year until in 1902 the name was changed to Anthropology. In the college year 1895-96 one professor and one instructor gave one research course, taken by three students, and one general course, taken by nine students. Ten years later one professor, three instructors, and one assistant gave four research courses to 12 students, and six other courses to 179 students. The teaching force for 1906-07 will be one professor, one assistant professor, two instructors, and one assistant. The courses offered will be: (1) general anthropology; (2) somatology; (4) prehistoric archeology and European ethnography; (5) American archeology and ethnology; (7) ethnology of Oceania; (8) American Indian languages; (9) archeology and hieroglyphic systems of Central America. Research courses: (20a) American archeology and ethnology; (20b) advanced somatology; (20c) studies in American languages; (20d) general ethnology; (20e) Central American and Mexican hieroglyphic and picture writing.

The officers of the Division are: Frederic W. Putnam, A.M., S.D., Peabody professor of American archeology and ethnology, chairman; Roland B. Dixon, Ph.D., assistant professor in anthropology; William C. Farabee, Ph.D., instructor in anthropology; Alfred M. Tozzer, Ph.D., instructor in Central American archeology; Charles Peabody, Ph.D., instructor in European archeology and ethnology; Herbert J. Spinden, A.M., Hemenway fellow, assistant in anthropology.

HARVARD ANTHROPOLOGICAL SOCIETY

Connected with the Division of Anthropology is the Harvard Anthropological Society, composed of the officers in the Division and an average of forty students taking courses therein. This Society was founded in 1898. During the college term meetings

are held for the presentation and discussion of papers and the review of current anthropological literature. Two or more public lectures by eminent anthropologists are given each year in one of the Harvard lecture halls under the auspices of the Society.

RADCLIFFE ANTHROPOLOGICAL CLUB

Several courses in the Division of Anthropology are open to the students in Radcliffe College, and course 1 has been taken by Radcliffe students since 1899, course 4 since 1904. In 1903 the Radcliffe Anthropological Club was founded. This club is conducted on the same general principles as the Harvard Anthropological Society, except that no public meetings are held. It is composed of an average of twenty-five Radcliffe students taking the courses in anthropology.

YALE UNIVERSITY

To the courses in anthropology offered previous to the year 1902-03 a number of new ones have been added. In the fall of 1903 a junior course in general anthropology was started, and in 1906 the Department of Anthropology was definitely separated from Economics and Law, with which two departments it had been joined under the general Department of the Social Sciences.

The "A" course in anthropology is now called physical and commercial geography, and is given together by the departments of Geology and Anthropology. The regular "B" course is anthropology (general) and the "C" course is science of society. The numbers in these main courses for 1905-06 were respectively about 130, 210, and 110; for 1906-07, 160, 150, and 130.

In 1905-06 a one-hour course in somatic anthropology (now called natural history of man) was given by Professor Ferris of the Medical School; in 1906-07 this will be a two-hour course. For 1905-06 a course was given by Dr Keller in culture-history, and for 1906-07 one in historical anthropology. Since 1902 Dr Keller has given a two-hour course in anthropology (elementary) in the Sheffield Scientific School, in the select course; for 1906-07 there will be about 70 men in this course.

The "A" course in physical and commercial geography is mainly a study of environmental influences on man, with especial

reference to trade. Connected with this course is a commercial museum, the exhibit at the Portland Exposition of the U. S. Bureau of Plant Industry. Less connected with pure anthropology are courses which develop out of it, as flora and fauna of commerce, markets, transportation, etc. Since, however, all these courses are envisaged from the standpoint of sociology and anthropology, and pay attention to primitive types, they are truly part of the Department of Anthropology in its wider sense.

The Boocock Library of the Social Sciences still adds to itself a yearly increment of special works on anthropology, sociology, and especially ethnography.

Professor Sumner has in press a large volume on *Folk-ways*. His *Sociology* will soon appear also. To *Queries in Ethnography*, which was published in 1903, Dr Keller will shortly add an edition of Keltie's *Partition of Africa* and a work on *Colonization*.

YALE UNIVERSITY MUSEUM

When the Yale University Museum was founded, no provision was made for anthropology. The plans included storage, exhibition, and lecture rooms for three departments only, viz., geology, mineralogy, and zoology, and the income from invested funds was for the use of these alone. The anthropological section exists, therefore, by courtesy; homeless, but for the attic, and without income. Luckily it is not without friends, and these are increasing in number every year. Through them there have been added fifty-nine collections since the New York Congress four years ago. Of these, fifty-two were gifts, and seven loans. The gifts of money number two; and of cases, four. Nine exchange collections have been received, while three important accessions are the result of field work. Only two purchases have been made.

The more important accessions are the following:

An annual consignment of Egyptian antiquities from several localities, representing various dynasties and periods, the gift of the Egypt Exploration Fund.

Several hundred Indian antiquities from a rock-shelter near Pleasant Valley, Connecticut, the gift of Mr Walter E. Manchester.

Two Chilcat blankets, a number of Indian baskets, and various

ethnological specimens from Japan, Africa, and Alaska, the gift of Mrs Elizabeth F. Jenkins and Mrs Kate Foote Coe.

(1) Plaster casts of aboriginal objects in stone, of rare types, from Alabama and Florida; (2) A collection of gorgets, pendants, and implements of shell; stone pendants and bone implements, from the mounds and shell-keys along the southwest coast of Florida—all the gift of Mr Clarence B. Moore of Philadelphia.

Aboriginal American basketry and other ethnological specimens to the number of 293, loaned by Mr and Mrs William H. Moseley of New Haven. Forty-eight Egyptian and Soudanese baskets and various Egyptian antiquities, also loaned by Mr and Mrs Moseley.

Two hundred and fifty-six eolithic and paleolithic implements from England, France, and Belgium, the result of field work by the curator, Dr George Grant MacCurdy, and given by him to the Museum.

A double Indian burial, removed intact from Derby, Connecticut, and installed to illustrate an early mode of burial by the Indians of southern New England—the result of field work by the Museum.

An Eskimo collection from Point Barrow, Alaska, consisting of wearing apparel, weapons, tools, utensils, etc., the gift of Miss Grace Nicholson, Pasadena, California.

An ethnographic collection from the Philippine islands, including articles of clothing, spears, arrows, bolas, daggers, etc., the gift of Lieut. Theodore Gruener, New Haven.

Ancient Egyptian pottery, collected at Beni-Hassan in 1904, the gift of the Beni-Hassan Excavations Committee.

More than five hundred antiquities from the ancient pueblos and cliff-dwellings of Utah, Colorado, Arizona, and New Mexico, the gift of Professor T. Mitchell Prudden, College of Physicians and Surgeons, Columbia University. Dr Prudden's gift includes also a choice selection of modern Pueblo pottery, a catalogue, maps, field notes, and new cases for the installation of the collection.

Mr Benjamin Hoppin, of Baddeck, Nova Scotia, has added to his Eskimo collection and has given a new case for its installation.

The only annual contributor of money to the anthropological

section of the Museum is Mr Stansbury Hagar of New York City.

The curator's time has been given largely to research work on the archeological material, with a view to publication. A monograph entitled: "The Eolithic Problem—Evidences of a Rude Industry antedating the Paleolithic,"¹ has already appeared, and a much more extensive work on the several thousand Chiriquian antiquities in the Museum is now well under way.

COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK

Anthropological instruction at Columbia University was inaugurated in 1894 by Dr Livingston Farrand and Dr W. Z. Ripley, who for a number of years gave a joint course on general ethnology. In 1896 Dr Franz Boas was appointed lecturer in physical anthropology, and gave introductory courses on physical anthropology and also introduced the study of Indian languages. In 1899 Dr Boas was appointed professor of anthropology.

In 1903 the Duke of Loubat established a professorship of American archeology, to which Marshall H. Saville was appointed. In the same year Professor Farrand, who up to that time had divided his work between the departments of Psychology and Anthropology, was transferred to the Department of Anthropology and concentrated his work on the development of this department. In 1902 and 1903 Dr William Jones was appointed assistant in American linguistics, which position he held for two years. In 1903-04 Dr Clark Wissler was appointed assistant in physical anthropology. The following courses have been given during the last four years:

1. General anthropology, introductory course. Professor Farrand.....	1902-03	1903-04	1904-05	1905-06
2. Statistics applied to anthropometry. Professor Boas.....	1902-03	1903-04	1904-05	1905-06
3. Ethnology. Professor Farrand....	1902-03	1903-04	1904-05	1905-06
4. Physical anthropology. Professor Boas.....	-	-	1904-05	-
5. American languages. Professor Boas.....	1902-03	1903-04	1904-05	1905-06
6. Ethnography of America and Asia. Professor Boas.....	-	1903-04	1904-05	1905-06

¹ *American Anthropologist*, VII, p. 425-479. July-September, 1905.

7. Ethnography of Asia. Dr Berthold Laufer	-	-	1904-05	1905-06
8. Archeology of Mexico. Professor Saville.....	-	1903-04	1904-05	1905-06
9. Spanish sources for American ethnology. Mr A. F. Bandelier.....	-	-	1904-05	1905-06
10. General archeology. Professor Saville.....	-	-	-	1905-06
11. Archeology of Peru. Mr A. F. Bandelier	-	-	-	1905-06
12. Anthropological research. Professors Boas and Farrand.....	1902-03	1903-04	1904-05	1905-06
13. Primitive industries. Dr Clark Wissler.....	-	1903-04	1904-05	1905-06

With the present year a general reorganization of the department has been made. The course on statistics applied to anthropometry, which has been given for a number of years as a general introduction to the study of variation, will be continued by the Department of Mathematics as a general course introductory to statistical work, and its place will be taken by a systematic course in anthropometry, while morphological-anthropological work will be carried on in the Anatomical Institution by Professor Huntington. A course on general ethnography has been added to the introductory courses, and the course on American languages is divided into an introductory and an advanced course.

The members of the staff of the department, and advanced students, during the past years have carried on research work of various kinds in coöperation with the Bureau of American Ethnology, the Carnegie Institution, and the American Museum of Natural History.

With the present year Columbia University has organized, in coöperation with Yale University, courses in preparation for foreign service, in which anthropological instruction occupies a somewhat important position. The arrangement of these courses has been the occasion for further developing the ethnographical courses on eastern Asia.

AMERICAN MUSEUM OF NATURAL HISTORY

In 1903 Professor F. W. Putnam resigned the curatorship of the Department of Anthropology in the American Museum of Natural

History, which he had held for nearly ten years, and accepted a call to take charge of the Department of Anthropology of the University of California. From this time until 1906 the Department of Anthropology of the American Museum was occupied, chiefly under the direction of Professor Franz Boas, with the completion of work already under way at the time of the meeting of the Congress of Americanists in New York City in 1902, at which meeting a report of progress was made. In conformity with previous plans ethnological and archeological research in North America has been systematically conducted in five culture areas: the Arctic, the Pacific coast of the United States, the Great Plains, the Great Lake and Forest area, and the Pueblo area.

For a number of years Professor Boas has directed the collection of anthropological specimens and information among the Eskimo about Hudson bay and northward. During the winter of 1905 Captain George Comer and Captain James Mutch returned from whaling voyages to the straits and inlets north of Hudson bay where they obtained many interesting specimens. Professor Boas has made a special study of the data gathered by these gentlemen, the results of which will soon appear in the Museum Bulletin.

Rev. J. W. Chapman, for many years a missionary on Yukon river, stationed in the vicinity of Anvik, made important ethnological collections among the Athapascan tribes inhabiting that region, in whose culture an interesting mixture of Alaskan Eskimo and Athapascan is apparent.

In 1899 the Museum organized the Huntington Californian Expedition for investigations among the Maidu, Pit River, and Shasta Indians. This work was under the charge of Dr Roland B. Dixon and was practically completed in 1904. The results of this expedition have been entirely satisfactory; these include the systematic presentation of the language of the Maidu and the Shasta, a study of their art and their general ethnology. The results of the work among the Maidu have been published in the Bulletin of the Museum. Since 1902 Miss Constance Goddard DuBois has made annual visits to the Mission Indians of southern California for the purpose of investigating their general ethnology and language. She has made considerable progress in her work, but it is yet incom-

plete and will be carried on in the future under the direction of the University of California. Preliminary reports of her work have been published.¹

From 1897 to 1899, in connection with the Jesup North Pacific Expedition, Mr Harlan I. Smith made extensive archeological explorations in British Columbia, the results of which suggested the investigation of the archeology of the Columbia River valley. Accordingly in the summer of 1903 he explored the Yakima valley, that the boundary between the culture of The Dalles and of the Thompson River region might be determined. The results of this work seem to indicate that the general plateau culture of the interior of British Columbia, Washington, and Oregon, differing greatly from the culture of the coast, resembled that of the present natives. In the Yakima valley the culture seems to be slightly different from that of the Thompson River region, and perhaps even less like that of the region around The Dalles. The most interesting object secured on this expedition was a carving in antler, representing a costumed human figure, which is in many respects unique. A preliminary report of the results of the expedition² and a general comparative summary of all archeological explorations on the North Pacific coast³ have been published.

Since 1902 the Museum has continued a systematic study of the decorative art and ceremonies of the Indians of the plains. During this time expeditions have been made to the Assiniboin, Blackfeet, Dakota, Gros Ventres, and Sarsi, all of which yielded important scientific results, with illustrative specimens. Professor Franz Boas, who directed this investigation, has summarized the results on decorative art.⁴ The interesting point was that the interpretations given by a people to their conventional decorative designs are of secondary importance because of a tendency to read into such designs ideas habitually entertained by their makers. On this account it has seemed desirable to continue the investigation of the decorative art of the Plains Indians from two points of view: (1) To determine from the objective designs the types for the several tribes

¹ *Journal of American Folk-Lore*, 1905, 1906.

² See *Science*, April 6, 1906.

³ *Bulletin of the American Geographical Society*, xxxviii, May, 1906.

⁴ *Popular Science Monthly*, Oct., 1903.

and, if possible, their relation to one another; (2) to determine the types of ideas associated with decorative designs among the various tribes. It will not be possible to complete this research for several years. Previous to 1902 Dr A. L. Kroeber carried on the field work among the Plains Indians and since that time he has prepared a detailed comparative statement of the types of designs characteristic of the tribes so far investigated. This will appear in a future edition of the Museum Bulletin. During the summer of 1905 Dr P. E. Goddard visited the Sarsi in Canada and secured an important collection of decorated objects, but the exact relation of the art of this tribe to the general Plains type can not be definitely stated at this time.

In connection with the foregoing studies in art, the ceremonial organization of the various tribes visited was investigated. Dr A. L. Kroeber has completed the manuscript for the Arapaho and the Gros Ventres, a portion of which has been published. The Museum has secured an extensive collection of ceremonial objects from the Blackfoot tribes and the necessary data for a publication treating of their ceremonial life and organization. Dr J. R. Walker has spent the last two years in a similar investigation among the Dakota.

Dr William Jones has been engaged in continuous study of the Ojibwa in the Great Lake region of North America and has made a general collection of ethnological specimens from the same people. So far he has recorded in the original language all of the most important myths of these people, most of which material has been prepared for publication. He has made a special study also of their philosophy and religion as revealed in the myths and the ceremonies pertaining to the Midewiwin and other rites. For the last two years the greater portion of this work has been under the direction of the Carnegie Institution.

The work of the Hyde Expedition was continued by Mr George H. Pepper who in 1904 made a special investigation of Pueblo pottery. Twenty-six pueblos in New Mexico and Arizona were visited and a representative collection was obtained from each. During the summer of 1904 several months were devoted to the study of textile work among the Navaho, the greater portion of the work being done at Ganado, Arizona, which is in the southern part of the

Navaho reservation. At this time a series of looms was obtained showing the technique of the various primitive forms of Navaho textiles. In addition a trip was made to the state of Michoacan in the southwestern part of Mexico where archeological work was carried on during the months of November and December.

North America was not the only field of operations during this period of 1903-05. Mr Adolph F. Bandelier returned to New York in 1903 after several years of continuous exploration in Peru and adjacent parts of South America. Since his return the large archeological collections from this region have been arranged for exhibition, and Mr Bandelier is engaged on an extensive work on the culture of the ancient Peruvians.¹ This work is intended to be a critical examination of all available historical and archeological data.

Dr Berthold Laufer completed his Chinese collections in the early part of 1904 and through his efforts the Museum has brought together a large number of well-selected specimens pertaining particularly to the industrial life of China, with supplementary information for treating the material culture of Chinese peoples from the historical point of view. Since his return Dr Laufer has completed for publication a study of ancient pottery and other material relating to Chinese archeology.² The work in China was under the direction of the East Asiatic Committee, of which Professor Boas was the executive secretary.

Some important illustrative collections were procured by the Museum. In 1903 a valuable collection from the natives of central Australia was obtained by exchange with the National Museum of Melbourne, Victoria. This collection contains specimens of practically all the types described by Spencer and Gillen in their famous work on the Native Tribes of Central Australia. In the same year an arrangement was made with the Bureau of Missions by which a very important ethnological collection from Africa was deposited in the Museum. In addition the Museum has acquired from time to time a number of small African collections, including one of carvings in ivory and wood. In 1905 the ethnological collection of the Philip-

¹ For various papers on the subjects of Mr Bandelier's researches in Peru and Bolivia, see *American Anthropologist*, 1904, 1905.

² Dr Laufer's "Historical Jottings on Amber in Asia" will appear in a forthcoming issue of the *American Anthropologist*.

pine islands at the St Louis Exposition was presented to the Museum by President Jesup. This is a large and important collection, presenting many aspects of the general ethnology of the islands.

The following is a list of the official publications of the Department of Anthropology for the years named :

For 1903

- G. T. Emmons : The Basketry of the Tlingit. (*Memoirs*, III, pt. 2, pp. 229-278.)
Ales Hrdlicka : Divisions of the Parietal Bone in Man and Mammals. (*Bulletin*, XIX, pp. 231-386.)
Franz Boas : The Jesup North Pacific Expedition. (*Museum Journal*, III, pp. 71-119.)
Harlan I. Smith : Shell Heaps of the Lower Fraser River, British Columbia. (*Memoirs*, IV, pt. 4, pp. 133-192.)

For 1904

- Waldemar Borgoras : The Chukchee — Material Culture. (*Memoirs*, VII, pt. 3, pp. 1-276.)
Carl Lumholtz : Decorative Art of the Huichol Indians. (*Memoirs*, II, pt. 3, pp. 279-327.)
A. L. Kroeber : The Arapaho. III. Ceremonial Organization. (*Bulletin*, XVIII, pt. 2, pp. 151-230.)
Clark Wissler : Decorative Art of the Sioux Indians. (*Bulletin*, XVIII, pt. 3, pp. 231-278.)
Harlan I. Smith : A Costumed Human Figure from Tampico, Washington. (*Bulletin*, XX, pp. 195-203.)
Adolph F. Bandelier : On the Relative Antiquity of Ancient Peruvian Burials. (*Bulletin*, XX, pp. 217-226.)

For 1905

- Franz Boas and George Hunt : Kwakiutl Texts. (*Memoirs*, III, pt. 3, pp. 403-532.)
W. Jochelson : Religion and Myths of the Koryak. (*Memoirs*, VI, pt. 1, pp. 1-382.)
J. R. Swanton : The Haida of Queen Charlotte Islands. (*Memoirs*, V, pt. 1, pp. 1-300.)
Franz Boas : Anthropometry of Central California. (*Bulletin*, XVII, pt. 4, pp. 347-380.)
R. B. Dixon : The Northern Maidu. (*Bulletin*, XVII, pt. 3, pp. 11-346.)
G. F. Kunz : On the Ancient Inscribed Summerian (Babylonian) Axe-head from the Morgan Collection in the American Museum of Natural History. (*Bulletin*, XXI, pp. 37-47.)
J. D. Prince and R. Lau : An Ancient Babylonian Axe-head. (*Bulletin*, XXI, pp. 49-52.)

BROOKLYN INSTITUTE MUSEUM

A Department of Ethnology was established by the Brooklyn Institute of Arts and Sciences in February, 1903, and Mr Stewart Culin appointed curator. The primary object of the department was the acquisition of ethnological material for the Institute Museum, for which a large building was in course of erection on the Eastern Parkway, Brooklyn. The Museum had been divided between art and natural history, and no considerable amount of ethnological material had been accumulated. The curator was free, therefore, to develop the collections from the beginning. It was determined to devote the attention of the department first to the American Indian, and the southwestern section of the United States was selected for the preliminary work. The curator proceeded to the field in the spring of 1903 and made other trips in the two years following. As a result one large hall of the Museum has been arranged and opened to the public. Precisely half of this hall is devoted to the pueblo of Zuñi, special attention being given to the exhibition of Zuñi masks and ceremonial objects. The opposite side is devoted to the Apache, Navaho, Hopi, and Cliff-dwellers. A large collection of material from the cliff-dwellings in the Cañon de Chelly, obtained by Mr Culin in 1903, is an important feature of this exhibit. It includes many recent Navaho and Hopi objects, intermingled with the remains of the cliff-dwellers proper. Among other interesting Navaho collections is a set of old masks for the Yebichai dance. Altogether 133 different masks of the southwestern Indians are exhibited in this hall.

A feature of the hall is the employment of pictures in connection with the exhibits, and much attention has been paid to the artistic arrangement of the collections. In 1904 and 1905 Mr Culin was accompanied in the field by the Museum staff artist, Mr H. B. Judy, who made a large number of sketches of the landscape, houses, and people of the Pueblo country. Enlargements of a number of these sketches are displayed in the upper parts of the exhibition cases, and a panorama of the landscape opposite the East mesa of Hopiland is shown along the upper part of the wall immediately below the ceiling.

Materials for a second American hall, to be devoted to collec-

tions from California and the Northwest coast, have also been collected by Mr Culin during his field trips. No publications have yet been made, the principal effort having been expended on the work of collection and display. At the same time much important information has been obtained and turned to account in the preparation of systematic labels.

FIELD MUSEUM OF NATURAL HISTORY

Since the account of the Department of Anthropology of the Field Museum of Natural History (then Field Columbian Museum) was presented to the members of the Thirteenth Congress of Americanists in 1902, there has been no change in the policy as stated at that time, namely, the consideration of the claims of anthropology in America, especially in North America, as subjects for investigation and museum presentation. Within the North American field very little new investigation has been undertaken, but much additional research has been carried on among the tribes referred to in the report of 1902. Thus more or less continuous investigation has been made by the curator of the department among the Pawnee, Wichita, Caddo, Arikara, Ponca, Cheyenne, and Arapaho, that among the tribes of the Caddoan stock being under the auspices of the Carnegie Institution of Washington. Dr C. F. Newcombe has continued his explorations among the various tribes of the North Pacific coast of America. Dr J. W. Hudson has continued his investigation among the tribes of California. Assistant curator Owen has made additional investigations among the Navaho and the Apache, and for two winters has studied the so-called Mission Indians of southern California. Assistant curator Simms has made additional visits to the Crow Indians of Montana, and to the Cree, Assiniboin, and Ojibwa of Canada. Mr H. R. Voth has devoted two more years to investigation among the Hopi of Arizona. Through coöperation with the Bureau of American Ethnology, Mr James Mooney has spent many months continuing his researches in the heraldic system of the Plains Indians, especially among the Cheyenne.

As a result of these investigations many important acquisitions have been made. This is especially true of the Northwest coast

and of California, the Apache, Pawnee, Arikara, Wichita, Cree, and Cheyenne. Several collections from North America have also been acquired through purchase, notably a large collection of buffalo-hide shields from the Pueblo tribes, a number of painted buffalo robes, a very important collection from the village of Wushuum of the Chinook of Washington, and about 250 fine old baskets from tribes hitherto not well represented in the Museum's collections.

The acquisition of new specimens from the many tribes above enumerated has made necessary the reinstallation of the material. The most important rearrangements are to be found in the collections from the Northwest coast and California, which are now completely installed, with the exception of the Mission Indian collection. The Northwest Coast collection occupies in this present arrangement 88 cases and is one of the most imposing collections in the Museum. The reinstallation of the California collection was made possible by the transfer of the Museum lectures to the city, the collection being now installed in about 50 cases in the old lecture hall. Space is not available in the hall, however, for the Mission collection, which will be exhibited in an adjoining room. The Arapaho collection, which is now very complete and extensive, is as yet only partially installed; while the Cheyenne collection, equally important in certain respects and even more extensive, is not yet installed. Certain rearrangements have been made in the Hopi hall, rendered necessary by the acquisition of new material consisting almost exclusively of dance paraphernalia.

Since 1903 the department has been acquiring, at a gradually increasing rate, material from countries other than North America. One of the most important collections thus obtained was made by Allayne Ireland, who visited Borneo and the neighboring territory under the joint auspices of the Field Museum and the University of Chicago. As a result of this expedition the department acquired a very large collection from British Borneo, the Malay peninsula, and Burma. On his visit to Europe last year the curator acquired by purchase a number of valuable collections, among the most important of which is one made by Professor Rudolf Martin of Zürich, which formed the illustrations for his great work on the Malay peninsula. Other collections of importance have been acquired

from Australia, German and English New Guinea, and Admiralty, New Ireland, New Britain, Matty, Durour, Hervey, Fiji, Samoa, and Marshall and Gilbert islands. At the same time collections were obtained from Benin, West Africa, and Togo Hinterland. From several islands of the Pacific a limited number of specimens was secured, especially from the Marquesas, Hawaii, Easter island, Tonga, the Carolines, and New Zealand. In addition to the few specimens procured from New Zealand was a large Maori house consisting of 88 pieces. In the autumn of last year there was acquired by purchase a collection, numbering about 8,000 objects, from Professor Frederick Starr of the University of Chicago. This acquisition, the result of many years of collecting on the part of Professor Starr, comprises such material as the Peñafiel collection of Mexican objects, and that obtained during three years' investigation in the ruins of Tlacotepec. There is also included in this collection a large number of valuable specimens illustrating the ethnology of the Tonkawa, Sauk and Foxes, and Iroquois, and a small archeological collection from the Southwest including a very rare cliff-dwelling spear-thrower in an excellent state of preservation. Also forming a part of Professor Starr's collection is an extensive series of objects illustrating the ethnology of the more primitive tribes of Mexico, and about 140 busts of Indians of New Mexico and Mexico, made under Professor Starr's personal supervision.

The opportunity afforded by the Louisiana Purchase Exposition at St. Louis in 1904 was taken advantage of, and at the end of the exposition there were acquired, through either gift or purchase, collections which will be named in order of their probable importance: An archeological collection from Calchaquí, Argentina, and one from Egypt; ethnological collections from German East Africa, Ceylon, Siam, Yesso, India, New Zealand, Tibet, the Soudan, and the Pigmy tribes of equatorial Africa. The great opportunity presented by the presence of a large number of primitive people at St. Louis was seized by the official photographer of the Museum, who spent five months on the Exposition grounds, during which time more than 3,000 negatives were made, including two or three positions of all the American tribes, as well as those from the Philippines, Asia, and Africa, together with photographs of their habitations and industries.

At the same time material was secured for the construction of eight groups in miniature exhibiting primitive life. The department cooperated with the American Museum of Natural History and secured more than 50 busts, made from life molds, of some of the most interesting representatives at the exposition. During the early months of the exposition, Dr Newcombe of the Department of Anthropology was in charge of representatives of two tribes of the Northwest coast, and brought them to Chicago for several weeks' stay, rendering valuable assistance in the identification of material which, up to that time, it had not been possible to classify properly.

During the last four years the department has been enriched by certain gifts, the most important of which are worthy of mention. Chief among these is that of Mr Cummings, of which notice will be made presently. Mr Stanley McCormick has very generously continued to support the Hopi investigations. From Mr Martin A. Ryerson, vice-president of the board of trustees, has been received a large and interesting collection of objects illustrating the life of the lake-dwellers of Switzerland. Mr Ryerson has also generously made possible the acquisition, by exchange with the Berlin Museum, of part of Dr Koch's Brazilian collection. From the J. L. James estate were secured a handsome and valuable Egyptian sarcophagus of a late period and seven mummy cases containing mummies, and a large number of smaller objects of the time of the Romans.

Since 1902 the Anthropological Department of the Museum has issued the following publications: "The Oraibi Snake Dance," "The Oraibi Oáqol Ceremony," "Oraibi Natal Customs," "Hopi Proper Names," "Hopi Mythology," all by H. R. Voth; "Traditions of the Crows," by S. C. Simms; "Traditions of the Arapaho," by G. A. Dorsey and A. L. Kroeber; "The Sun Dance of the Arapaho, Ponca and Cheyenne," "The Ceremonial Organization of the Cheyenne," and "Traditions of the Osage," by G. A. Dorsey. It seems proper in this connection to note that investigations carried on by the curator have been printed by the Carnegie Institution as follows: "The Mythology of the Wichita," "The Traditions of the Caddo," and "The Traditions of the Arikara." An additional volume, also a portion of the Carnegie investigation, has been published as the eighth volume of *Memoirs of the American Folk-Lore*

Society under the title "The Traditions of the Skidi Pawnee." An additional volume has been prepared and was recently transmitted to the Carnegie Institution for publication under the title "The Mythology of the Pawnee." This volume will be printed in two parts, part II to contain the text and music of 60 songs, and an examination of the elements of the mythology of the Caddoan tribes as compared with those of other tribes of North America. The material for another volume resulting from the Carnegie investigation is at hand and its preparation well under way; this treats of the social and ceremonial organization of the Pawnee. The curator has also been engaged for four years in an investigation of the Arapaho, the results of which will be ready for publication during the forthcoming winter. It is expected that at least two additional volumes will be necessary to complete the results of the Stanley McCormick expedition among the Hopi. Dr Newcombe is now engaged in the preparation of certain monographs which will present the result of his special investigations on the North Pacific coast.

For the immediate future many of the investigations above noted will be continued in North America. The most important new field of research to be undertaken is the Philippine islands. This investigation has been made possible through the generosity of Mr Robert Fowler Cummings, who has presented the sum of \$20,000 to the Museum to defray the expenses of a systematic survey of the many tribes of the islands. This work will be carried on by Dr William Jones and Mr F. C. Cole, and will require from four to six years for its completion.

The untimely death of Mr Marshall Field in January made a profound impression on the officers of the Museum. Those of the scientific staff of the Museum who knew Mr Field were greatly encouraged by the constantly increasing interest which he manifested in the institution as it grew from year to year. It seems apparent that originally Mr Field's interest in the Museum was indefinite, and that he gave a million dollars in the beginning largely because he was asked and urged by his friends to perform a public act; but as he saw the institution grow, especially as he recognized the constantly increasing interest manifested by the teachers and children of the public schools, and as he saw the institution gain its

share of the respect and confidence of the scientific world, his enthusiasm grew in proportion. During the last few years of his life there was practically nothing done in the Museum of which he was not cognizant. He took great interest in the plans for the new building, and it is a source of keen regret to the officers of the Museum that he did not live to see them carried into execution. The essence of the character of Mr Field, honesty and intensity of purpose, seems more and more to have dominated the Museum, and it is perhaps due to the inspiration furnished by Mr Field's life that it has been able to accomplish what it has done in the brief space of twelve years. After the death of Mr Field it was found that he had left the sum of \$8,000,000 for the Museum, of which it is proposed to spend three or four millions for a building, reserving the remainder as a maintenance fund. To be added to this source of income is a fund, which will be available as soon as the Museum enters its permanent quarters, obtained by taxation in that part of Chicago under the control of the South Park commissioners. Thus the future income of the Museum will be in all probability between \$200,000 and \$250,000 per annum. Its position therefore seems assured. In recognition of Mr Field's interest in the Museum, and in consideration of the fact that the institution had outgrown its former World's Fair character, the trustees recently decided, and it seems wisely, to change the name from Field Columbian Museum to Field Museum of Natural History. Thus due honor is still paid the illustrious founder, and the public is at once informed as to the Museum's character and function.

UNIVERSITY OF PENNSYLVANIA

The Free Museum of Science and Art of the University of Pennsylvania has continued to subscribe to the Egypt Exploration Fund and to the Egyptian Research Account, and has shared in the results of these explorations, receiving a series of valuable objects ranging in chronological order from the earliest prehistoric period to the latest dynasties and of great significance not only to students of Egyptian history, but to anthropologists as well.

In 1903 the Second Archeological Expedition to Crete, organized through the American Exploration Society, went out for the

Museum. In 1904 the excavations in Crete were continued, chiefly at Gournia, the site of a Mycenæan town discovered by Miss Harriet A. Boyd, who conducted the excavations. Other sites also in the same vicinity were discovered and explored, notably a number of rock-shelters, containing pottery of a very primitive type, but no trace of metals. Practically the entire site of Gournia has been cleared, and through the liberality of the Cretan government a large collection of pottery, bronze, and stone objects, representing several culture periods, has been placed in the Museum. The great interest of these collections consists in the fact that they represent an unbroken succession from a very primitive period through the bronze age to the introduction of iron, and illustrate the relation of early prehistoric conditions in the Mediterranean region to the later culture. The report on these explorations, a large folio volume now in press, will contain, in addition to much other matter of great interest, a series of colored plates illustrating the painted pottery and other artistic objects found in the excavations.

Much has been done in the Babylonian section of the Museum in the classification, cataloguing, and interpretation of the large collection of cuneiform tablets and other objects discovered at Nippur by the University expeditions of 1900-1902, as well as by those of earlier dates, and the preparation of this material for publication has been carried forward steadily under the direction of Professor Hilprecht, who, in addition to the volumes already published by himself and his assistants, has in press two new volumes embodying the results of his most recent researches. The excavations of the Babylonian expeditions were not confined to the strata of the Babylonian period alone, but extended backward through an unbroken sequence to a remote prehistoric era which corresponds to the very beginnings of culture in that region. The collections therefore contain much material that is of peculiar value to the anthropologist as well as to the Assyriologist.

In 1905 Dr G. B. Gordon, curator of ethnology, made an extended excursion in northern Alaska in the interest of the Museum, collecting specimens illustrating the cultures of the Athapascans and the Eskimo, making an inquiry into the present condition of these peoples, and procuring data relative to their tribal rela-

tions and surviving customs. As a result of this trip the Museum has acquired an extensive Eskimo collection and a considerable number of valuable specimens from the Tinné and the Tlingit.

Dr Gordon, who is also curator of American archeology, has made a series of excursions about eastern Pennsylvania, locating the aboriginal village sites, quarries, workshops, and trails, with a view of preparing an ethnological map of the state. From these various sites several interesting series, illustrating the characteristic artificial types of the region and the aboriginal methods of working in stone, have been placed in the Museum.

The most notable collections received by the Museum through gift and by purchase are the following: (1) Reproductions of bronzes from Pompeii and Herculaneum in the National Museum at Naples. (2) Part of the Egyptian exhibit at the Louisiana Purchase Exposition, including the tomb of Ra-ka-pou described by Mariette in his "Mastabas of the Old Empire." (3) Ethnological collection from the Caroline islands, procured by Dr W. H. Furness, 3d. (4) Collection illustrating the ethnology of the Bagobos of Luzon. Besides these prominent acquisitions the collections in the Museum have increased very materially by smaller accretions, and the installation has proceeded as rapidly as circumstances would permit. Already the need is felt for an addition to the Museum, and steps are being considered for proceeding with the construction of the building on the extensive plan outlined at its origin.

In the library of the Museum the Brinton collection of Americana and works relating to anthropology generally, presented to the University by the late Dr Daniel Garrison Brinton, has been completely catalogued since 1903, and the many valuable manuscripts, including the Berendt collection which it contains, are at the disposal of scholars. An effort is being made to keep this library up to date, continuing the great work done by Dr Brinton by adding to his collections all the more recent works bearing on the several branches of anthropology. Since 1902 about 4,000 books and pamphlets have been added, and the collection, augmented by yearly accumulations of standard anthropological literature, will render effective the plan which Dr Brinton had in view and should do much toward making this institution an important center for anthropological investigation in America.

When in 1886 Dr Brinton was appointed to the chair of American archeology and linguistics at the University of Pennsylvania, that institution took the initial step in a movement which, taken up soon afterward by Harvard, has led to the introduction of anthropology as a distinct branch of learning into all the principal universities in the United States. In founding a chair of American archeology and ethnology, Pennsylvania was not only the first of American universities to recognize the claims of these special branches of investigation, but was the first to introduce the study of anthropology as a distinct science. It is well known that Dr Brinton's comprehensive exposition of his subject embraced the whole science of anthropology, and his lectures foreshadowed the later development of instruction in anthropology in America. Although first in this movement, the University of Pennsylvania did not subsequently make so rapid progress in this particular direction as some of the other American universities. In recent years, however, there has been renewed activity in this respect. In the academic year 1903-04 a general introductory course was announced, and at the same time a course in American archeology and ethnology was continued. In the year 1905-06, a course in European ethnology was added, and during the last academic year a total of 56 students registered in these three courses. It is planned to increase further in the near future the opportunities for instruction in anthropology at the University of Pennsylvania.

A course of public lectures has been given during each winter at the Museum by the curators and by scholars from other institutions at home and abroad.

In 1897 Mrs Lucy Wharton Drexel, to promote archeological research founded a medal to be awarded annually by the Department of Archeology to an English-speaking scholar for archeological excavation, or publication based on archeological excavation. In 1903 this medal was struck for the first time, four being awarded simultaneously to Professor F. W. Putnam, Professor Herman V. Hilprecht, Dr William M. Flinders-Petrie, and Mr Arthur J. Evans. These four medallists, selected by the board of managers of the Department of Archeology, constitute a committee on award. In 1904 the medal was awarded to Bernard Pyne Grenfell, and in 1906

to William Mitchell Ramsay of King's College, University of Aberdeen.

The following publications have been issued by the University since 1902 :

- (1) Publications of the Babylonian Expedition of the University of Pennsylvania, Edited by Professor Hilprecht.

Series A, vol. X, Business Documents of Murashu Sons of Nippur, by Dr A. T. Clay, 1904.

Series A, vols. XIV and XV, Documents from the Temple Archives of Nippur, by Dr A. T. Clay, 1906.

Series D, vol. III, Early Babylonian Personal Names, by Dr Herman Ranke, 1905.

- (2) Pachacamac: Report of the University of Pennsylvania Expedition to Peru, by Dr Max Uhle.

- (3) Transactions of the Free Museum of Science and Art: vol. I, pts. 1-2-3, vol. 2, pt. 1.

Contents, vol. I, pt. 1: Gournia. Report of the American Exploration Society's Excavations at Gournia, Crete, 1901-1903, by Harriet A. Boyd. Scenes from the *Æthiopis* on a Black-figured Amphora, by William Nickerson Bates. The Stone Money of Uap, by William Henry Furness, 3d. Chronological Sequence in the Maya Ruins of Central America, by G. B. Gordon.

Contents, vol. I, pt. 2: In the Temple of Bêl at Nippur, by H. V. Hilprecht.

Contents, vol. I, pt. 3: The Serpent Motive in the Ancient Art of Central America and Mexico, by G. B. Gordon. The Etruscan Inscriptions in the Museum, by William Nickerson Bates. Torso of a *Hermes*, by Alfred Emerson. Gournia: Report of the American Exploration Society's Excavations at Gournia, Crete, 1904, by Harriet A. Boyd. Early Painted Pottery from Gournia, Crete, by Edith H. Hall. Excavations at Vasiliki, 1904, by Richard B. Saeger. Topographical Map from Nippur, by A. T. Clay. The Archaic Arch at Nippur, by Clarence S. Fisher.

Contents, vol. II, pt. 1: Decorated Pottery of the Bronze Age in Crete, by Edith H. Hall. Some Notes on Xochicalco, by Adela Breton. Notes on the Western Eskimo, by G. B. Gordon. An Inscribed Bone from Ohio, by G. B. Gordon.

UNIVERSITY OF CALIFORNIA

As the Department of Anthropology of the University of California, which had its origin in several archeological expeditions sent out for the University in 1899 by Mrs Phœbe A. Hearst, was not

organized as a department and museum until 1901, since which time Mrs Hearst has generously maintained her support, the greater part of its existence falls within the period since the last meeting of the International Congress of Americanists on American soil in the autumn of 1902.

During these four years the history of the department has consisted of a steady furtherance of its researches, a rapid expansion of its collections, and the institution of a system of publication and instruction. In 1903 Professor F. W. Putnam was appointed head of the department as professor of anthropology and director of the Museum. Immediately thereafter an Ethnological and Archaeological Survey of California was organized for the correlation and development of the various lines of anthropological research then in progress concerning that state. In the same year the greater part of the collections accumulated up to that time were temporarily transferred from the provisional storehouse originally erected for them on the University grounds in Berkeley, to a large suitable building belonging to the University at the Affiliated Colleges in San Francisco. In the former building it had been impossible to use and work over the collections properly, and it was becoming difficult to find space for their storage. The building at present occupied, which is spacious and well lit, has made possible the satisfactory handling and disposition of specimens. In consequence the work of unpacking, identifying, arranging, and recording the collections has been continuously prosecuted until at present the bulk of the material is suitably prepared for permanent preservation in the Museum. The larger part of the collections has been arranged in eleven halls and smaller rooms so as to be visible and available for use by students and scholars. Since 1905 it has been found practicable to provide a limited exhibition of these collections to the public. The storage building vacated in Berkeley has been partly remodeled into offices and class rooms for the department. In the main hall of this Berkeley building a collection of plaster casts belonging to the department, illustrating ancient Oriental, Greek, and Roman art and architecture, has been installed for exhibition. A gallery surrounding this hall is devoted to an arrangement of a general synoptic anthropological collection used

in connection with instruction given to students. In 1905 Mrs Hearst formally transferred to the University all collections made through her for the Museum.

The primary object of the department is research and the increase of knowledge. As this purpose since the beginning has been intimately associated with and largely carried out through the formation of a museum, the progress of the department can best be understood by a consideration of these two lines of activity in conjunction.

The Ethnological and Archaeological Survey of California is organized to prosecute to the fullest extent investigations dealing with the native and aboriginal inhabitants of all parts of the state and their ethnology, linguistics, archeology, and antiquity. This work is maintained by the department with the coöperation of other institutions and of the people of the state. Under the direction of Professor F. W. Putnam investigations have been made during the last four years by the regular staff of the department, consisting of Professors A. L. Kroeber, P. E. Goddard, and J. C. Merriam, Mr S. A. Barrett, and several assistants, as well as by a number of collaborators, including Professor R. B. Dixon, Miss C. G. DuBois, and Mr J. Peterson.

Investigations concerning the antiquity of man have been carried on under the immediate supervision of Professors Putnam and Merriam in several parts of the state, notably the auriferous gravel regions and certain caves in Shasta county. A summary of the latest results of the latter explorations has been published.¹ Archeological investigations have been under the direction of Professor Merriam and have been conducted largely among the shell-mounds of San Francisco bay, supplementary to a general archeological reconnoissance of the southern part of the state made during the earlier years of the department's existence. A general survey of the mounds of the bay region has been made. Two mounds in Alameda and Contra Costa counties have been thoroughly examined, one in continuation of earlier exploration, with a view to determining fully both their geological relations and their structure and contents. Other mounds and deposits have been partially explored.

¹ *American Anthropologist*, VIII, no. 2, April-June, 1906.

In ethnology and the examination of the native languages, extensive studies have been made in several parts of the state, which can be best summarized by a review of the work done in connection with each of the various distinct stocks of Indians.

The investigations among the Hupa, Tolowa, Wailaki, Kato, and other groups belonging to the great Athapaskan stock in northern California have been in the hands of Professor Goddard. Considerable field work has been accomplished with each of these divisions and much valuable information, especially as to the beliefs and speech of these people, has been gone over and is being prepared for publication by Professor Goddard. His researches have been most extended among the Hupa, regarding whom he has in progress an elaborate series of publications. Three of these, comprising two volumes, have been issued, "Life and Culture of the Hupa," "Hupa Texts," and "The Morphology of the Hupa Language," while the remaining contributions, to consist of a Phonology and Dictionary of the language, are partly in press. In connection with his investigations of the Athapascans of California, which form part of a larger plan for the investigation of the entire Athapaskan family, Professor Goddard has also commenced studies in continuation of the work of the late Dr Washington Matthews among the Navaho and Apache of Arizona and New Mexico.

The Yurok stock of northwestern California has been made the subject of a special ethnological study by Professor Kroeber. These people seem to be the most typical representatives of the peculiarly specialized culture of this part of the state, for which reason an extensive investigation of them has been made, illustrated by a large museum collection.

Among the neighboring Karok the ethnological investigations made have been in the main supplementary to those among the Yurok. The Karok language, however, has been given particular attention and a considerable body of information regarding it has been acquired.

The small Chimariko stock, which is the nearest to extinction of those that remain in California, has been the subject of a monographic investigation by Professor R. B. Dixon in 1906. The present condition of this broken, scattered, and reduced band of

people, whose survivors can be counted on the fingers of one hand, leaves opportunity for only a limited acquisition of ethnological information. Professor Dixon's study of their language has in compensation been the more thorough.

The Yuki stock has been investigated by Professor Kroeber, and the language, which seems typical of the languages of a large part of California, has been especially studied and a large body of material bearing upon it has been secured. A portion of this information has been prepared for preliminary publication.

The adjacent Pomo have been investigated by Mr S. A. Barrett. He has made special studies of their geography and dialectic and political divisions; of their basketry, basket designs, and ornamental art; and of their myths, and has reports on these subjects well advanced toward completion. In addition he is engaged on a general study of the culture of the Pomo.

Among the Wintun stock no systematic investigations have as yet been made, but both Professor Dixon and Mr Barrett have been able to acquire valuable information in extension of their work among neighboring tribes.

The Moquelumnan stock occupies two separate territories. The people in the northern of these areas have been studied by Mr Barrett in connection with the Pomo, of whom they are neighbors and whom they resemble. The bulk of the Moquelumnan people, generally known as Miwok, occupy an inland territory farther south. At the present moment arrangements are being made for an ethnological reconnoissance of this region, to serve as a basis for more extensive future investigations.

Among the Yokuts, who adjoin the Miwok on the south, more work has been done, both in ethnology and linguistics. A paper on the Yokuts language and its dialects, by Professor Kroeber, is at present passing through the press.

The language of the Washoe of eastern central California and western Nevada has been the subject of a preliminary study which is in preparation for publication.

The languages of the nearly extinct stocks of the coast south of San Francisco—Costanoan, Esselen, Salinan, and Chumash—are the subject of a preliminary report issued in 1904.

The California tribes belonging to the extensive Shoshonean and Yuman families have been considerably studied. A paper by Professor Kroeber on the Shoshonean dialects of the state is in press. Investigations among the Luiseño and Diegueño of southern California have also been made, principally by Miss DuBois, who has devoted her attention particularly to the religious side of the life of these people. Professor Kroeber has collected information as to the material, social, and religious culture of the Mohave.

Somatology has not been neglected in the survey. A paper issued in the department's series of publications by Dr A. Hrdlicka on "The Physical Anthropology of California" has stimulated interest in the subject. The somatological collections have been increased since the preparation of Dr Hrdlicka's paper, and a systematic collection of photographs and measurements of living Indians has been undertaken, which it is hoped to extend in time to cover the entire state.

While the work and results of the Survey must continue to consist in the main of the more detailed investigations that have been enumerated and others of a similar scope, the correlation of the discoveries made and their presentation in convenient and readily accessible summary have not been neglected. Preliminary publications of this nature on "The Native Languages of California,"¹ by Professor Dixon and Professor Kroeber, and on "Types of Indian Culture in California," by Professor Kroeber, have been issued, the latter in the department's series of publications. A larger, more general work, dealing with all phases of the anthropology of California, is in preparation.

The collections illustrative of California anthropology date back in part to donations received in the early years of the University's existence, long before the establishment of the Department of Anthropology. Since the latter event they have many times multiplied, and the last four years have brought a rapid increase. Nearly all sections or culture regions of the state are now represented by ethnological and archeological and in part by somatological specimens illustrating the aboriginal life and types. From several regions the material is extensive and very valuable. The California

¹ *American Anthropologist*, v, 1-26, Jan.-Mar., 1903.

collections fill the largest hall in the building at present occupied by the department.

In the greater part of North America outside of California, researches and the formation of collections have of necessity been less extensive and systematic than in California. Considerable collections had been acquired by 1902. Since that year efforts in this field have been directed to investigations of special subjects promising results of value, and to the increase and rounding out of the collections with a view to making them representative of as many of the principal types of North American culture as possible. Through an arrangement made possible by Mrs Hearst on behalf of the department, Dr Washington Matthews spent the last years of his life in the study and arrangement of the voluminous ethnological and linguistic information accumulated by him, chiefly from the Navaho, during the long period of his field service. Subsequent to Dr Matthews' death Professor Goddard has continued the preparation of this material and has undertaken the continuance of Dr Matthews' work. A paper containing several Navaho myths, prayers, and songs collected by Dr Matthews and edited by Dr Goddard is now in press. In the Mississippi valley an archeological collection from a well-known interesting site near Kimmswick was obtained by a joint expedition. Explorations in the Delaware valley were made by Mr E. Volk for one season. Through Mr George H. Pepper a collection illustrative of recent Pueblo pottery and its manufacture was obtained. In 1903 the Tlingit, Eskimo, and Athapascan collections previously presented by the Alaska Commercial Company to the University were transferred to the department. From these sources, supplemented by the acquisition of portraits, photographs, and exchanges, the general North American collections of the department have become fairly illustrative and well-balanced and of value for comparisons. They contain many rare and some unique pieces.

Mexican researches have been made possible by the Crocker Fund for archeological research in Mexico, established in 1902, and have been intrusted to Mrs Zelia Nuttall, who since that time has resided in that country. Mrs Nuttall has made several explorations, besides giving much study to old books and manuscripts. She has pub-

lished the first part of the important Codex entitled "The Book of the Life of the Ancient Mexicans," and a paper dealing with "The Earliest Historical Relations between Mexico and Japan," both issued by the department. She is at present engaged on several other papers of a similar nature. Mrs Nuttall has also been instrumental in securing for the Museum ethnological and archeological collections from Mexico, supplementing these by a number of casts of small objects. From Mr C. E. Rumsey the museum has received the valuable Anton Roman Memorial collection of prehistoric pottery and stone objects from Chiriqui. These collections, with others previously obtained for the department from the Indians of Guatemala, have established a Mexican and Central American section of the museum.

The South American researches of the department have been carried on by Dr Max Uhle in Peru in continuance of those previously made by him for the department and for other institutions. During 1903 Dr Uhle was engaged mainly in the preparation of reports on his explorations and collections made at Trujillo, Huamachuco, Chincha, Huaitara, and Ica. These reports are now being completed for publication. During 1904 and 1905 Dr Uhle conducted explorations in Peru in the vicinities of Ancon, Chancay, Supe, Cuzco, Chala, Nazca, and Lima. In all these regions important collections were obtained, whose value is enhanced by the new regulations concerning the export of Peruvian antiquities which were enacted coincidently with Dr Uhle's acceptance of the directorship of the archeological section of the National Museum of that country. Dr Uhle's field investigations were made primarily with a view to discriminating more accurately between the various culture types of ancient Peru and of establishing their geographical and temporal relations. In the course of his most recent explorations for the department he has discovered several such new types of civilization, some of them apparently of great age, besides seemingly correlating several others regarding whose chronological sequence or contemporaneity and historical relation little or nothing was previously known. As a result of Dr Uhle's earlier and later explorations for the department, the Museum possesses ten thousand carefully collected and identified archeological specimens from all

the known periods and from practically all parts of Peru. Many of these serve as the basis for the most completely developed views regarding the history of Peruvian civilization, and all will be invaluable in connection with such theories and beliefs on this subject as the future may bring forth.

The large collections illustrative of Greek, Roman, and other Mediterranean archeology, for which the University is indebted to Mrs Hearst, were completed in 1902. A great part of these collections did not actually arrive in California however until after this date. Their unpacking, arrangement, and recording were undertaken in 1903 under the direction of Dr Alfred Emerson, the collector. In somewhat more than a year Dr Emerson completed this work, leaving the Museum in possession of one of the largest and most valuable collections of Græco-Roman archeology in America. The bulk of the material, comprising all the originals and certain reproductions, is systematically arranged for exhibit in the Museum in San Francisco. The plaster casts and other reproductions illustrative more particularly of ancient art, have been arranged and are open for exhibition in the main hall of the former storage building of the department in Berkeley.

Messrs B. P. Grenfell, A. S. Hunt, and J. G. Smyly have been engaged in the further editing and publication of the results obtained by the two first named, during excavations made in 1889-1900 in the Fayum, Egypt. The numerous unique and invaluable manuscripts obtained during this exploration are being prepared for publication, translation, and comment in "The Tebtunis Papyri," which will constitute the first three volumes of the department's publications in Græco-Roman archeology. Volume I was issued in 1902 and volume II is at the present moment leaving the press.

The Egyptian Expedition, also supported by Mrs Hearst and under the direction of Dr G. A. Reisner, assisted by Messrs F. N. Green, A. M. Lythgoe, A. C. Mace, and N. de G. Davis, which had explored from 1899 to 1902 at Coptos, Der-el-Ballas, El-Ahaiwah, Ballas, and Naga-ed-Der, continued excavations at Naga-ed-Der and Gizeh from 1902 to 1905. Many important scientific results were obtained by the expedition. The development of the mastaba during the earlier dynasties was established and much new light

thrown on both the culture and the physical type and presumable origin of the predynastic Egyptians. The collections obtained are very extensive and a large part of them arrived at the Museum between 1902 and 1906. They have been partially unpacked, but it has not yet been possible to catalogue or install them. An imposing series of publications describing the results of the expedition is projected. Seven volumes have so far been announced. Of these the first, "The Hearst Medical Papyrus," by Dr G. A. Reisner, was issued in 1905. Two succeeding volumes are in an advanced stage of publication.

Various accessions from Asia, the Philippines, Oceanica, Africa, and prehistoric Europe have been received in the last four years, which have developed and strengthened these sections of the Museum. Among these the collections from Oceanica are now the most extensive.

A system of publications of the department, of which a number of papers have already been mentioned individually, was planned in 1901, but with one exception has been entirely developed since 1902. It consists of three series: one of Egyptian Archæology, one of Græco-Roman Archæology, and one of American Archæology and Ethnology, besides a projected series of Memoirs and a series of Special Publications. In each of the first-mentioned two series, one volume has been issued and several others are on the point of appearing. In the American series ten papers, comprising three volumes and part of a fourth, have appeared, while an equal number of contributions are either in press or in an advanced stage of preparation.

University instruction given by the department has also practically originated since the Congress at New York. The one course given in 1901-02 has developed into a system of eight and ten courses now offered annually. This instruction not only introduces undergraduate students to anthropology and provides them with several courses on topics of broad interest, but furnishes systematic work in ethnology, archæology, and linguistics to advanced students and prospective anthropologists.

ANTHROPOLOGICAL SOCIETIES IN CALIFORNIA

The anthropological societies of California, other than the active Southwest Society of the Archaeological Institute of America¹ centered in Los Angeles, date from the mid-summer meeting of the American Anthropological Association in San Francisco in 1905. The several societies had been formally founded, or steps had been taken to organize them, previous to this occasion, but the beginning of their activity was in each instance coincident with or immediately following the coming of the anthropologists, and much of the stimulus that has given them life was born of this meeting, which was the first of the kind held on the Pacific coast.

The San Francisco Society of the Archaeological Institute of America dates back to the latter part of 1903, when a meeting was held and an organization adopted. The Society's active existence, however, began in 1905, when about two weeks after the session of the American Anthropological Association a meeting was held at which the Honorable James D. Phelan was chosen president and other officers were elected. Professor F. W. Putnam delivered a lecture on "American Archeology." Later in the winter, on the occasion of a visit from Professor Mitchell Carroll of Washington, a third successful meeting was held, at which Professor Carroll spoke on "The Acropolis." The Society was greatly strengthened about this period by Professor Carroll's exertions on its behalf, and at the time of the fire which overwhelmed San Francisco it had enrolled more than fifty members. A month later the Society was formally accepted as an affiliated society of the Institute. After a probable temporary suspension of its activity, the Society expects to re-enter upon its career with increased energy as soon as the general conditions of industry in San Francisco shall have returned to a normal basis.

A lively interest has been aroused of late in folk-lore matters in California and two coöperating societies are carrying on work. On May 3, 1905, a Berkeley Folk-Lore Club, consisting principally of members of the faculty of the University of California, was founded with fifteen charter members. During 1905-06 this society held four meetings at which papers were presented. In the course of the

¹ See page 505.

year the membership enlarged to more than twenty and increased interest was manifested. Professor A. F. Lange has served as president.

At the first regular meeting of the Berkeley Folk-Lore Club on August 18, 1905, a committee appointed to report on the feasibility of the establishment of a California Branch of the American Folk-Lore Society made favorable recommendations. This report was adopted and the California Branch of the American Folk-Lore Society was thereby founded by those present and signifying their assent. The first meeting was held ten days later, when the Branch was fully organized by the adoption of by-laws and the election of officers. Professor F. W. Putnam was chosen president and Mr Charles Keeler first vice-president. Dr C. Hart Merriam gave an address on "Aboriginal Folk-Lore from California" and was followed by Professor Putnam, Dr R. B. Dixon, Dr Charles Peabody, Professor W. E. Ritter, and Professor J. C. Merriam as speakers. Subsequently during 1905-06 seven other meetings were held in San Francisco and Berkeley. At these meetings lectures and papers were presented on the folk-lore and mythology of the Japanese, the Chinese, the Hebrews of Old Testament times, the modern Arabic-speaking peoples, the Polynesians, and the races of the Philippine islands, the audiences ranging from fifty to two hundred and fifty persons. During the same season five papers of some length, besides a number of shorter articles and notes, dealing with California and other folk-lore, were contributed by members of the Branch to the *Journal of American Folk-Lore*. Other papers have been prepared and promised, and a separate department of the Journal has been instituted for the proceedings of the Branch. Membership is held largely by residents of San Francisco, Berkeley, and other bay cities, but people in all parts of the state, including southern California, as well as a number of eastern anthropologists interested in the folk-lore of California, are among the members.

The society is now preparing to reassemble for the first meeting of 1906-07. Meetings will be held as heretofore in Berkeley and San Francisco and it is hoped will be extended to other cities of the state. A program for the year is being prepared in which a series of meetings and papers dealing systematically with at least

one aspect of general folk-lore, and a line of study devoted specially to local folk-lore, will be features.

CLARK UNIVERSITY

The activities of the Department of Anthropology at Clark University have consisted of academic lectures, investigations, etc., by Dr Alexander F. Chamberlain, the head of the department, who, since 1904, has borne the title of assistant professor of anthropology. During the period 1902-06 the topics treated in the lecture courses have included the following: Heredity and environment in the individual and the race, phenomena of race mixture, education among primitive peoples, anthropological history of America, psychology of primitive peoples, rôle of the individual in primitive culture, contact of "higher" and "lower" races, interpretation of folk-lore, psychology of primitive languages, religions of primitive peoples, progress and its criteria, Orient and Occident, the negro in Africa and in America, childhood of the race and of the individual, evolution of human culture, etc. The basis for and illustrations of these lectures have been as far as possible the anthropological phenomena revealed by the study of America past and present, Indian and Aryan.

Among the investigations carried on, or now in progress, may be mentioned:

(1) Studies in linguistic psychology (primitive knowledge-words, taste-words, hearing-words, etc.); (2) Language of the Kutenai Indians (preparation of a dictionary, etc.); (3) Contact of the Indian and the White in America (culture-borrowings, loan-words in American English, contributions of the American Indian to civilization); (4) The contributions of the Negro race to human civilization; (5) A linguistic map of South America; (6) Ethno-botany of the Kutenai Indians; (7) The Canadian French of northwestern Canada, etc.; (8) The influence of the Algonquian and Iroquoian stocks on other Indian peoples; (9) Association of ideas in American Indian languages; (10) Acquisition of reading and writing by primitive peoples; (11) Studies of a child.

The publications of Dr Chamberlain for 1902-06 include, apart from those not concerned with American anthropology:

1. Algonkian words in American English. *Jour. Amer. Folk-Lore*, xv, pp. 240-267, 1902.
2. An Algonquian loan-word in Siouan. *American Anthropologist*, N. S., v, pp. 172-173, 1903.
3. Primitive theories of knowledge. *Monist*, xiii, pp. 295-302, 1903.
4. Primitive taste-words. *Amer. Jour. Psychol.*, xiv, pp. 146-153, 1903.
5. The contributions of the American Indian to civilization. *Proc. Amer. Antig. Soc.*, N. S., xvi, pp. 91-126, 1902-03.
6. Race-character and local color in proverbs. *Jour. Amer. Folk-Lore*, xvii, pp. 28-31, 1904.
7. Iroquois in northwestern Canada. *American Anthropologist*, N. S., vi, pp. 459-463, 1904.
8. American Indians. *Encyclop. Americana*, viii, 1904.
9. Mythology of Indian stocks north of Mexico — I. *Jour. Amer. Folk-Lore*, xviii, pp. 111-122, 1905.
10. Primitive hearing and "hearing-words." *Amer. Jour. Psychol.*, xvi., pp. 119-130, 1905.
11. "Pitons" and Canadian substitutes for money. *Jour. Amer. Folk-Lore*, xix, pp. 170-171, 1906.

In collaboration with Mr W. W. Tooker, Dr Chamberlain is preparing an addition (with notes, vocabulary, etc.) of "The Proverbs of Solomon, King of Israel," from the text of the "Eliot Bible." During the period 1902-06 considerable attention has been paid to bibliographical work, and Dr Chamberlain has conducted the "Periodical Literature" department of the *American Anthropologist*, the "Record of American Folk-lore" of the *Journal of American Folk-Lore*, and the section on "Archeology, Ethnology, and Folk-lore" of the *Review of Historical Publications Relating to Canada*.

The endowment of the library of Clark University, under the terms of the will of its founder, and the erection and occupancy of the new library building, have rendered possible the better arrangement of the books in the anthropological department, to which large additions have recently been made. The liberal administration of the librarian, Dr Louis N. Wilson, permits an increasing use of the library to be made by scholars and others concerned. Evidence of interest in the anthropology of the American Indians is shown in Worcester by the recent publication of two valuable studies by gentlemen not immediately connected with professional academic life, namely: "Indian Names of Places in Worcester County, Massa-

chusetts," by L. N. Kinnicutt (pp. 59, Worcester, 1905), and "A Study of the Etymology of the Indian Place Name Missisquoi," by George McAleer, M.D. (pp. 104, Worcester, 1906).

In recent years the theses for the degree of Ph. D. in the Psychological and Pedagogical departments of the University have drawn largely on anthropological material. In 1904 there was established, under the editorial direction of President G. Stanley Hall, *The American Journal of Religious Psychology and Education*, which, like his recent comprehensive study of "Adolescence" (New York, 2 vols., 1904), contains much of interest to anthropologists.

PHILLIPS ACADEMY

In 1901, by the gift of Mr and Mrs Robert Singleton Peabody, of Philadelphia, a Department of American Archeology was established at Phillips Academy, Andover, Massachusetts. The purpose of this foundation is threefold—instruction, research, and publication. An artistic building, a collection of thirty thousand specimens, and a faculty consisting of the honorary director, Dr Charles Peabody, and the curator, Warren King Moorehead, A.M., completed the equipment requisite for the unique experiment of teaching archeology in a secondary school.

Voluntary classes of from fifteen to twenty senior students receive two lectures a week and "eye-knowledge" by means of the stereopticon and of the collections in the museum. While the department is yet too young to judge of ultimate results, one thing is made certain, namely, that no one of the four hundred students at Andover leaves school without knowing that there is such a science as American archeology, a fact not even yet of universal or even general knowledge.

Explorations have been undertaken at Hopkinsville, Kentucky, in an ancient cemetery; in Jacobs Cavern, southwestern Missouri; and at Bushey Cave, Cavetown, Maryland. The results in addition to the collections from these sites have been gratifying. Striking instances of the antiquity of man as proved by evidences of man embedded in stalagmite were found in both caverns, and the red cave-earth was identified in which, if ever, the remains of very early man in America are likely to be found in any abundance.

Two Bulletins, "The Exploration of Jacob's Cavern" (1904) and "The So-called 'Gorget's'" (1906) have been issued. No. 2 is in accordance with the wishes of the founders that individual specimens should receive the detailed systematic study vouchsafed to specimens in the other natural sciences.

An exhibition assisted by Mr Gerard Fowke's care and advice was installed at the Louisiana Purchase Exposition and honored by the award of a silver medal.

The department is self-supporting, and hopes to continue to be of service to the archeological interests of anthropology.

THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON

This Society was founded in 1879, early in the period when the science of anthropology was beginning to awaken to a knowledge of the extent of its domain. The constant endeavor of the Society has been to increase the resources of anthropology, and it has succeeded in maintaining a high standard of excellence in the character of its scientific work. The membership has been drawn mainly from Washington, where various activities of the Government for many years have attracted men of science from all parts of the United States, but there are many members distributed throughout this and other countries. The list of the corresponding and honorary members contains the names of many of the world's best known anthropologists.

The American Anthropologist for a number of years was maintained as the journal of the Society, until, through the demands of broader organization, it became spokesman for the anthropological workers of America; but it is still the organ of the Society, which publishes therein its proceedings and many of the papers read before it. There have appeared eleven volumes of the old series of *The American Anthropologist* (1888-1899), three volumes of *Transactions*, one volume of *Abstract of Transactions*, and two *Special Papers*.

Since the Society of Americanists honored the United States with its presence in 1902 there have been read before the Anthropological Society 114 papers, falling under the following classes: Archeology, 27; sociology, 24; technology, 15; somatology, 13;

sophiology, 9; history and biography, 8; ethnology, 5; philology, 4; psychology, 4; exploration, 3; esthetology, 2; classification, 1; and general, 1. Seventy-six of these papers were read by 21 members.

In 1902 Mr W. H. Holmes, whose active interest has contributed so much to the achievements of the Society, was re-elected president; in the following year Miss Alice C. Fletcher honored the Society and materially advanced its interests as its presiding officer; in 1904 Dr D. S. Lamb became president.

A noteworthy event during 1905 was the presentation of "The History of the Anthropological Society of Washington," by Dr Lamb. This paper, which formed Dr Lamb's presidential address, was the result of his efforts to collate the history of the Society from the chaotic records of its earlier years.

In 1905 Dr George M. Kober occupied the chair of president, and the year of his incumbency was marked by steady and encouraging progress. In May, 1906, Mr J. D. McGuire was chosen to serve the Society as its chief officer.

During the period 1902-06 many interesting specimens were exhibited before the Society and numerous verbal communications and reports were presented. The discussion of the papers was full and satisfactory. Three symposiums of special interest have engaged the attention of the members, namely, on artifacts in the caves of the United States; on the origin of Floridian culture; and on clans and gentes. These subjects, which were treated by means of formal papers and discussions, were productive of good results.

Within the period covered by this review there is recorded the loss by death of Major J. W. Powell, a leader of thought in anthropological science; Dr Washington Matthews, the dean of the body of investigators; Dr Thomas Wilson, the archeologist; Dr W. W. Johnston, prominent in advanced medical science; Dr Swan M. Burnett, and Col. Weston Flint.

The officers of the Society for 1906 are: President, J. D. McGuire; vice-presidents: (a) Somatology, Ales Hrdlicka; (b) psychology, J. Walter Fewkes; (c) esthetology, W. H. Holmes; (d) technology, Walter Hough; (e) sociology, James Mooney; (f) philology, J. N. B. Hewitt; (g) sophiology, Miss Alice C. Fletcher;

general secretary, Dr Walter Hough; secretary to the board of managers, Dr John R. Swanton; treasurer, Mr George C. Maynard; curator, Mrs Marianna P. Seaman; councilors, Paul Beckwith, I. M. Casanowicz, J. W. Fewkes, J. N. B. Hewitt, F. W. Hodge, Mrs Sarah L. James, James Mooney, J. B. Nichols, W. E. Safford, and J. R. Swanton.

AMERICAN ETHNOLOGICAL SOCIETY

This Society, which was founded in 1849, was reorganized in 1900 and has held regular meetings since that time. Most of the meetings of the Society have been held in coöperation with the Section of Psychology and Anthropology of the New York Academy of Sciences. During the last four years the Ethnological Society has had for its official publication—jointly with the Anthropological Society of Washington—the *American Anthropologist*, in which the proceedings of the Society have been reported, and in which the more important papers read have appeared in the form of essays.

During the year 1904 the American Ethnological Society coöperated with the New York Academy of Sciences in the publication of memoirs, and in this manner a supplement to the *American Anthropologist*, entitled, "Some Principles of Algonquian Word-formation," by Dr William Jones, was published.

With the present year the American Ethnological Society, while continuing its former relation to the *American Anthropologist*, is beginning the publication of a separate series which is to appear at irregular intervals, and which will contain principally authentic records of information collected among the Indians, in the original languages, with translations. In undertaking this collection, which it is hoped will prove of value from an ethnological as well as from a philological point of view, the Society follows the line of work originally laid out by its founder, Albert Gallatin, to whom we owe the first serious attempt to classify the North American Indian languages. While the first volumes of the new series will be devoted to material of this class, it is hoped that other important ethnological information also will be included in later volumes.

NEW YORK ACADEMY OF SCIENCES

The anthropological meetings of the New York Academy of Sciences have been held in coöperation with the meetings of the American Ethnological Society. While up to the year 1905 the New York Academy of Sciences did not publish any anthropological material, but brought out important papers in coöperation with the American Ethnological Society and the *American Anthropologist*, two extended papers were published during the year 1905: "Essay on the Grammar of the Yukaghir Language," by Waldemar Jochelson; and "Materials for the Physical Anthropology of the Eastern European Jews," by Maurice Fishberg. The former was printed as a supplement to the *American Anthropologist*, the latter as the first issue of the Memoirs of the American Anthropological and Ethnological Societies.

THE AMERICAN FOLK-LORE SOCIETY

The work of the American Folk-Lore Society has proceeded without essential change in policy. The publications of the Society consist of a series of Memoirs, issued at convenient intervals, and a quarterly periodical, the *Journal of American Folk-Lore*.

In 1904 appeared volume VIII of the Memoirs, being a collection of Pawnee tales, entitled "Traditions of the Skidi Pawnee," by George A. Dorsey (8°, xvi, 366 pp.). Volume IX, to appear about October of the current year, will contain the Mexican Christmas miracle play entitled "Los Pastores," given in Spanish text with English translation. The basis of the work will be a version of the play as now performed on the Rio Grande; the text will be provided with introduction, illustrations, and music.

The *Journal of American Folk-Lore*, the principal publication of the Society, is now in its nineteenth volume. The Journal is designed (1) to present a record of American folk-lore; (2) to print inedited traditional matter, whether aboriginal or immigrant; (3) to afford facilities for comparative studies in the general subject. The "Record" forms a regular department, giving bibliographical information concerning American, Philippine, Negro, and American-European folk-lore, and undertakes to index publications on these subjects. This feature is prepared by Professor A. F. Chamber-

lain, the editor of the Journal. The scope of the Journal will best be understood by presenting the titles of certain of the papers which have appeared since the summer of 1902, as follows :

Aboriginal Material

- ALASKA: *Tales from Kodiak Island*. F. A. Golder. XVI, 16, 85.
 ALEUTIAN: *Stories*. F. A. Golder. XVIII, 215.
 ALGONQUIAN: *Manabozho and Hiawatha*. J. C. Hamilton. XVI, 229.
 CALIFORNIA: *A Ghost-dance*. A. L. Kroeber. XVII, 32.
 Some Shamans of. R. B. Dixon. XVII, 22.
 CHEYENNE: *An Obstacle Myth*. G. B. Grinnell. XVI, 108.
 CHIPEWYAN: *Fireside Stories*. J. M. Bell. XVI, 73.
 COSTA RICA: *Folk-lore of the Bribri and Brunka*. H. Pittier de Fábrega. XVI, 1.
 DAKOTA: *Whirlwind and Elk in Mythology*. C. Wissler. XVII, 257.
 DIEGUEÑO: *Story of the Chaup*. C. G. DuBois. XVIII, 217.
 LASSIK: *Tales*. P. E. Goddard. XIX, 133.
 MAIDU: *System and Sequence in Mythology*. R. B. Dixon. XVI, 32.
 MISSION: *Mythology*. C. G. DuBois. XVII, 185; XIX, 52, 145.
 PAWNEE: *Star Lore*. A. C. Fletcher. XVI, 10.
 PIMA: *A Constitution*. F. Russell. XVI, 222.
 POMO: *A Composite Myth*. S. A. Barrett. XIX, 37.
 SIOUX: *Games*. J. R. Walker. XVIII, 27, XIX, 29.
 WICHITA: *Tales*. G. A. Dorsey. XV, 215, XVI, 160, XVII, 153.
 WISHOSK: *Myths*. A. L. Kroeber. XVIII, 85.

Immigrant Material

- ENGLISH: *Traditional Ballads of New England*. P. Barry. XVIII, 123, 191, 291.
 Sailors' Chanties. P. A. Hutchison. XIX, 16.
 The Passover Song of the Kid and an Equivalent from New England. W. W. Newell. XVII, 33.
 Incantations and Popular Healing in Maryland. L. H. Wrenshall. XV, 268.
 FRENCH: *Four Louisiana Folk-tales*. A. Fortier. XIX, 123.
 French Canadian Folk-tales. W. J. Wintemberg. XVII, 265.
 GERMAN: "The Long Hidden Friend." (Folk-book of Charms.) By J. G. Hohman, Reading, Pa., 1819. Introduction by C. F. Brown. XVII, 89-152.
 Pennsylvania German Riddles and Nursery Rhymes. J. B. Stoudt. XIX, 113.
 FILIPINO: *Visayan Folk-tales — I*. B. S. Maxfield and W. H. Millington. XIX, 97.

- NEGRO: *African Institutions in America*. H. H. S. Aimes. xviii, 15.
Items from Bahama. M. Clavel. xvii, 36.
Ignis Fatuus. (Tale, with comparisons.) W. W. Newell. xvii, 39.
Notes on Music. C. Peabody. xvi, 148.

Comparative Studies

- The Folk-lore of the Eskimo*. F. Boas. xvii, 1.
Some Traits of Primitive Culture. F. Boas. xvii, 243.
Mythology of Indian Stocks North of Mexico. (Bibliographical.) A. F. Chamberlain. xviii, 111.
Race Character in Proverbs. A. F. Chamberlain. xvii, 28.
Significance of Mythology and Tradition. L. Fairand. xvii, 14.
Disenchantment by Decapitation. G. L. Kittredge. xviii, 1.
Individual and Collective Characteristics in Folk-lore. W. W. Newell. xix, 1.
Mexican Human Sacrifice. C. H. Toy. xviii, 173.

During the present year arrangements have been made to promote local organization, and branches of the American Folk-Lore Society have already been established in California,¹ Arizona, and Missouri. It is hoped to extend a similar organization to other states and territories, especially those which still possess unrecorded traditional matter. The effect of such extension must be to promote a more complete record, and to lend an impulse to every form of anthropological research. The Society has every reason, therefore, to anticipate a future of usefulness and prosperity.

ARCHÆOLOGICAL INSTITUTE OF AMERICA

The Archæological Institute of America confines its activities strictly to the field indicated by its title; hence much American philology, ethnology, and somatology inseparably bound up with American archeology have remained foreign to it; hence too the Institute has welcomed research and report in epigraphy and architecture of times entirely historic and of peoples continuous and contemporaneous. As archeologists the members have added to their classical field (a field offering archeological material, it must be said, in the greatest purity) a large sphere, or hemisphere, of action in the Americas. It will be remembered that the president of the In-

¹ See page 494.

stitute, Professor John Williams White of Harvard University, was appointed in June, 1901, to serve on the commission of organization of the Thirteenth International Congress of Americanists to be held at New York the following year, and that he was a member of the council of that Congress.¹

What the Institute has done in the American field may well be classified under three headings — legislation, research, and publication.

The subject of the preservation of the monuments of antiquities in America has been before various legislative bodies and incorporated in numerous drafts and bills, but it is only recently that a way has been found out of the many difficulties. As early as May, 1904, the council of the Institute created a committee on preservation of the remains of American antiquity,² with the president and secretary as chairman and secretary respectively; each society of the Institute was represented on this committee.

At a meeting in St Louis, September 22, 1904, a sub-committee, composed as follows, was appointed, to urge legislation: The president of the Institute; Mr Charles P. Bowditch; Honorable J. W. Foster; Mr W. H. Holmes, and Professor F. W. Putnam. At a meeting held in Washington, January 10, 1905, in conjunction with a similar committee of the American Anthropological Association,³ a memorandum was agreed on and on the following day the two committees appeared before the Committee on Public Lands of the House of Representatives. The congressional committee prepared a bill of substantially the same purport as the memorandum, but owing to failure of recognition by the Speaker the matter had to lie over.

The "hopes and purposes of those who are interested in the preservation of American antiquities, the steps taken, and the results achieved," were made the subject of a paper by Mr Edgar L. Hewett, read before the joint meeting of the Institute and the American Anthropological Association at Ithaca in December, 1905,

¹ *Am. Jour. Archaeology*, Suppl., vol. VI, p. 4, 1902.

² *Ibid.*, Suppl., vol. VIII, p. 4, 1904.

³ *Ibid.*, Suppl., vol. IX, p. 6, 1905.

and with an additional note on legislation may be consulted in the *American Anthropologist*.¹

Under the heading of research may be treated the formation of new societies in regions where research is possible. The Colorado and California societies are cases in point; the former has centers in Denver, Boulder, Colorado Springs, and Pueblo, and in the latter state are independent societies at San Francisco and Los Angeles. The western organization was largely the result of the energetic work of Professor D'Ooge and Professor Kelsey; their efforts in Los Angeles, ably seconded by the enthusiastic coöperation of the secretary, Mr Charles F. Lummis, have already borne much fruit.

The Southwest Society of the Institute was founded in Los Angeles in the last days of November, 1903, on lines intended to fulfil an original function of the Institute by means of local exploration—the locus of the Society being the million square miles broadly known as the Southwest. Under the stimulus of practical activity the Society has had a phenomenal growth. In its first year it rose to third rank in membership among the fifteen affiliations of the Institute; at two years old it was by far the largest society, with a roster of 406.

At the very outset the Southwest Society began active work, its first endeavor being to record, by phonograph, the fast-vanishing folk-songs of the Southwest. It has now thus recorded more than 600 numbers—about 400 in Spanish and the rest in 29 different Indian tongues—and has completed the transcription of the Spanish songs, which will be published as soon as proper translation and annotation can be given them. Sixty of the most interesting of these songs have been harmonized for a popular edition. In its first year the Society also raised a special fund and purchased a collection of thirty-four paintings which hung in the Franciscan missions of California until the disestablishment of 1834. Among these canvases—all of historical interest—are three of extraordinary artistic beauty and value. One of the most nearly perfect archeological collections of local interest in existence was made, years ago, by Dr F. M. Palmer, curator of the Southwest Society, and is now in the possession of the Los Angeles Chamber of Commerce. This

¹ Vol. VIII, no. 1, p. 109, 1906.

is pledged to the Society as soon as the latter shall have proper quarters. Complementary to this collection the Society has raised special funds and purchased two other collections, also of southern California archeology, which cover the field definitively. One of these collections was made by Dr Palmer; the other includes whatever he did not secure of the marvelous material found at Redondo Beach. The joint collection now includes a large number of *unica*, as well as all known specimens of several of the most extraordinary artifacts.

The Southwest Society is now engaged in founding a great free public museum, and is negotiating for the purchase of a site of 40 acres for \$60,000—what is believed to be the most beautiful site occupied by any public building in America. Upon this commanding hill the museum will be built, somewhat after the fashion of the Alhambra. A large number of collections are already pledged to the museum, including the personal relics of John C. Frémont, and all that the Roman Catholic Church retains of the relics of the heroic period of California—the Mission era of the Franciscans. Dr Palmer has conducted three expeditions on behalf of the Southwest Society—one on the sea-coast of southern California, in the summer of 1905; one on the northern verge of the White Mountain reservation in Arizona, in the same season; and one among the prehistoric cliff-dwellings of the Cañon de Chelly, Cañon del Muerto, Monument cañon, and the adjacent parts of northeastern Arizona, in May and June, 1906. All these explorations were rewarded by rich discoveries. It is the intention of the Society to prosecute researches in its chosen field as rapidly as funds can be procured; and it is now endeavoring to arrange for the Archæological Institute of America a new classification which shall differentiate properly between contributory and active societies. The Southwest Society has published two editions each of two illustrated bulletins, setting forth something of these activities, and a third bulletin is now in preparation.

The San Francisco Society was finally vivified and strengthened by Professor F. W. Putnam in 1905, interest having been aroused during the meetings of the American Anthropological Association in that city in the early fall. Among its present officers are: Presi-

dent, Hon. James D. Phelan; vice-presidents, Dr David Starr Jordan and Dr Benjamin Ide Wheeler, presidents respectively of Leland Stanford Junior University and the University of California. The roll contains fifty-one names. The continued activity of the Society in spite of the appalling disaster of April last deserves the highest commendation, a fact recognized by the Institute in the remission of all dues for the current year.¹

The work of the western members is frequently mentioned in *Out West*, of which magazine Mr. C. F. Lummis is editor; reference may be made specially to the numbers of March, 1904 (p. 288) and March-April, 1905 (p. 241).

The committee of the Institute on American archeology in 1899 established a traveling fellowship, and in 1901 Mr (now Dr) Alfred M. Tozzer was appointed Fellow for four years, during which he has made personal explorations among the Maya of southern Mexico and Central America. In 1905 he was succeeded as Fellow by Mr Edgar L. Hewett. The report of Dr Tozzer's work, soon to be issued, it is hoped, will deal at length with the archeology, ethnology, and linguistics of those tribes.

From February 27 to March 24, 1906, under the auspices of the Institute, Dr Tozzer delivered a lecture at various centers on "Some Aspects of American Archeology." He visited Boston, New York, the University of Pennsylvania, the George Washington University, Pittsburg, Washington and Jefferson College, Detroit, the University of Chicago, the University of Wisconsin, the State University of Iowa, the University of Kansas, the Prosser School, Kansas City, the University of Missouri, the Washington University, the University of Cincinnati, and the University of Rochester.

The practical interest shown by the Institute is proved by the appropriation in 1905 for the Committee on American Archaeology of \$2,500, later apportioned as follows:

To the Southwest Society, per Dr Palmer	\$300
Fellowship	500
For cave work, northern California ²	500
Field work, Central America	1,000
Balance	200
	<u>\$2,500</u>

¹ See pages 493, 494.

² See *American Anthropologist*, vol. VIII, no. 2, p. 221-235, 1906.

The *American Journal of Archaeology* is the official organ of the Institute. For many years an editorship in American archeology was provided for and committed to Professor Henry W. Haynes, of Boston. Later this was discontinued but in 1905 was reestablished and given to Dr Charles Peabody.

The president of the Institute, Professor Thomas Day Seymour, is insistent in his demand for a comprehensive and adequate representation in print of the American field, and the pages of the Journal welcome gladly contributions of merit commensurate in dignity with the standard maintained for many years in communications from Greece and Rome, Egypt, Palestine, and Babylonia. The Institute thus recognizes the growth in breadth and depth of archeology and finds expansive power in itself sufficient to meet the ever-increasing demands of the science.

AMERICAN ANTIQUARIAN SOCIETY

After the death, on August 5, 1897, of Dr J. Hammond Trumbull, the well-known Algonquian scholar and authority on the language of the Massachusetts Indians, in which was printed the famous "Eliot Bible," the manuscript of his Dictionary (neatly written in his own hand, in four volumes) came into the possession of the American Antiquarian Society, Worcester, Mass., of which he was a distinguished member. This "unique manuscript," as it has well been termed, in accordance with a happy thought of Rev. Edward Everett Hale was intrusted to the Bureau of American Ethnology at Washington, in whose hands it was prepared for publication by experts, appearing as Bulletin 26 of that institution, under the title "Natick Dictionary" (pp. xxviii, 1-349, Washington, 1903). Thus the joint action of the Bureau and the Society made accessible to students of American Indian tongues a work of great value. The anthropological activities of the American Antiquarian Society during the last few years have been limited to the publication of the results of investigations and researches by its members. Since 1902 the following papers have appeared in its Proceedings:

- (1) The Painted Rocks of Lake Chelan, by William D. Lyman. xv, n. s., pp. 259-261, 1902-03.

(2) The Contributions of the American Indian to Civilization, by Alexander F. Chamberlain. XVI, n. s., pp. 91-126, 1903-04.

(3) Aboriginal Languages of North America, by Edward E. Hale. *Ibid.*, pp. 307-313.

(4) Myths and Superstitions of the Oregon Indians, by William D. Lyman. *Ibid.*, pp. 221-251.

(5) A Page of American History, by Edward H. Thompson. *Ibid.*, xvii, n. s., pp. 239-252, 1905-06.

On November 16, 1905, the Society lost by death its president, Mr Stephen Salisbury, who had occupied that position for many years. He was particularly interested in Central American archeology, having himself visited Yucatan more than once, and read papers before the Society on the subject. Of his fortune, a considerable amount, estimated at some \$300,000 (partly real estate) passes to the Society. A portion of this will be used probably for the construction of a new building, of which the Society is sorely in need, its present home being altogether too small even for library purposes.

The value of the library of the Society, for students of early America and of the American aborigines, continues to increase, the files of periodicals and rare books and manuscripts being added to every year. Interesting to American anthropologists is the copy of Gallatin's "Synopsis of Indian Tribes" (the rare vol. II of *Archæologia Americana*), presented by him to Schoolcraft, differing in some respects from other editions, and containing text-changes and erasures made by the author himself.

OHIO STATE ARCHÆOLOGICAL AND HISTORICAL SOCIETY

Work in Ohio archeology has been carried forward with commendable activity and with remarkable success by the Ohio Archæological and Historical Society, the field investigations being conducted under the personal direction of Mr William C. Mills, curator and librarian. In 1902 was published the report on the investigations of the Adena mound, examined during the previous year, and in the same year was completed the investigation of the Baum village site, begun in 1899. The results of this work were published early in the present year.

In 1903 Mr Mills examined the Gartner mound and village site, the results of this study being published during the following year. No field investigations were conducted in 1904, as the time of the curator was occupied with a noteworthy exhibit at the Louisiana Purchase Exposition which attracted much attention and gained for the Society the award of a grand prize and for the curator a gold medal.

During the present summer Mr Mills has completed his excavations, for the Society, of the celebrated Harness mound, a task that may be regarded as the best of the many notable investigations that the Society has undertaken in Ohio. This great mound is 160 ft. long, 90 ft. broad at the base, and 18 ft. high, and had been excavated by explorers from time to time during half a century. Although these excavations had been conducted in almost every portion of the central part of the mound and many burials removed, Mr Mills has exhumed 133 burials; more than 100 pieces of copper, consisting of large plates, axes, ear-ornaments, pendants and large pearls set in copper, and pipes (all of the platform variety); engraved bone; cut mica in many designs; obsidian; cut human jaw-bones, and many other interesting objects, making a total of 12,177 specimens. The value of the studies is enhanced by a series of 125 photographs made during the progress of the work. Of no small interest is the discovery by Mr Mills that the so-called altar of this mound, described sixty years ago by Squier and Davis, is not an altar at all, but a grave. The report on this investigation is now in preparation and will be published early next year.

Attention is now directed to one of the large mounds of the Seip group, which is about the size of the Harness mound, but which, unlike the latter, has never been examined beneath the surface. Already this earthwork gives promise of affording many interesting objects to the Ohio Archaeological and Historical Society and much information on the customs of the builders.

The Society has not confined its attention to field researches and the publication of their results, interesting and valuable though they are. The tract on which the celebrated Fort Ancient stands has been converted into a free public park of nearly 300 acres. The Serpent Mound Park, it will be remembered, was transferred to the

Society some years ago by Harvard University. During the present year there was deeded to the Society a plot of land on the Muskingum, the site of the Big Bottom massacre, which also has been converted into a public park.

The Society is now engaged in the preparation of an archeological atlas of Ohio, arranged by counties; and in 1907 it will make an archeological exhibit at Jamestown, Virginia, on the occasion of the celebration of the founding of the Virginia colony.

A bill was introduced at the last session of the legislature appropriating \$400,000 for a new building for a home for the Society and the Ohio State Library. This bill was favorably reported, but, coming as it did at the close of the session, was recommended to lie over to the next session, when it will come up for action. The Society contemplates building an archeological museum of Ohio remains; no effort will be made to collect material pertaining to any other state.

WISCONSIN ARCHEOLOGICAL SOCIETY

The Wisconsin Archeological Society was organized in 1899 and in 1903 was incorporated under the laws of the state. The purpose of this organization is to encourage the preservation and the intelligent study of Wisconsin antiquities. For many years previous to its organization the interest in these was confined to only a scattered few of the citizens. Though frequently appealed to, the state government had manifested but little interest in the conservation of its aboriginal monuments or in the collection of information concerning them, hence these were left almost completely at the mercy of curiosity seekers and of persons ignorant of their scientific or educational value. Moreover, but few of the educational institutions of the state had manifested more than the slightest interest, some of these even neglecting to care for ancient works located upon their own premises. It was left to a few enthusiastic and self-sacrificing students here and there, and working generally quite independently of one another, to continue in limited areas the earlier surveys and researches of Lapham and his co-workers. In recent years some valuable researches were conducted by the United States government, these being confined chiefly to the

southwestern part of the state. The results of these were published and have since served to create additional interest.

Thousands of Wisconsin's valuable archeological treasures in clay, stone, and metal, which should have been preserved in the educational institutions of the state, through this lack of local interest found their way instead into the hands of dealers in Indian "relics" and other commercially inclined persons, and of tourists and summer residents, and were thus scattered far and wide throughout the country. This ever-increasing traffic became in time a positive menace to the study of Wisconsin archeology. The State Historical Society and one or two other local institutions alone attempted to assemble representative collections.

With the organization of the Wisconsin Archeological Society there has come as the result of organized effort a gradual awakening of popular interest in these matters. Beginning with a mere handful of intelligent and enthusiastic workers, the Society now has a membership of more than 500, including many of the state's most prominent educators and other influential and honored citizens. These are scattered through nearly every Wisconsin county and all are in some way or other assisting in its labors and working under its direction.

The following is a brief résumé of some of the more important work accomplished by the Wisconsin Archeological Society in the cause of the advancement of archeology in the last years of its existence:

The rapid destruction and obliteration of Wisconsin's antiquities, owing to the cultivation of lands, the construction of highways and railroads, the growth of cities and towns, and other causes, have made most necessary the conducting of surface surveys and researches in fields still available. Under the direction of the Archeological Society such work has been in progress for several years in various parts of the state. In several counties the investigations have already been completed and the results published. Others await publication or are still in progress. In other districts a large amount of valuable data has been collected. Each year the number of competent and willing volunteer field workers is increasing. Not a few of these have received special training at various educational

institutions giving archeological instruction and many more at the hands of the Society itself. Their reports are carefully criticized and helpful literature is furnished as required. From other workers, less advanced, many clues and other data of value to future workers or expeditions are received.

Fine groups of Indian mounds have already been preserved on the grounds of the University of Wisconsin, of Beloit and Carroll colleges, in Smith Park at Menasha, in Myrick Park at La Crosse, in Mound Cemetery at Racine, and in several other localities in the state. Through the activity and encouragement of the Wisconsin Society and of the coöperating Landmarks Committee other mounds are being preserved and appropriately marked. Recently there have been thus secured from destruction fine groups in Cutler Park at Waukesha and in the State Fair Park at West Allis. The ladies of Fort Atkinson have leased a plot of ground upon which is situated perhaps the only intaglio effigy mound still existing in the state. At the Society's request, the Wisconsin Central Railway, one of the important lines of the state, has agreed to preserve and to protect a series of beautiful large conical mounds situated along its right-of-way on the north shore of Lake Buffalo. It appreciates the scenic and historical value of these earthen monuments. The Society has secured also the right to protect from mutilation and to use for school instruction purposes an interesting group of effigy mounds conveniently situated on the upper Milwaukee river. It is desired to secure these permanently. At the coming session of the state legislature the appointment of a commission to consider the preservation and parking of the yet remaining earthworks at old Aztalan will be asked for. The preservation of other works, including the celebrated Man mound near Baraboo, will probably be secured through local interest, in the near future.

Nearly all of the prominent educational institutions of the state are now coöperating with the Society, and by its advice and with its assistance important archeological collections are now being assembled in some of them. In this laudable movement Beloit College is in advance of all others. Recent purchases of two of the most valuable Wisconsin cabinets have made its collections probably the most extensive and valuable in the state. At St Francis Seminary

and Milwaukee-Downer College good collections are being assembled. Ripon College and Lawrence University are making preparations to increase the educational value of their present inextensive collections by the acquirement of others. With the completion of the new Rankin Science Hall at Carroll College important collections will be installed. Several members of the Society will also there deposit cabinets owned by them. At Marquette College the establishment of a collection is being considered.

As a result of the continued agitation, it having been pointed out that these institutions are convenient places for the preservation of valuable local archeological materials, collections have been installed in public libraries at Green Bay, Menasha, Oshkosh, Fond du Lac, Racine, and elsewhere in the state. At Oshkosh, the museum established in connection with the library has received an added impetus by the securing of a noted collection. At Sheboygan, plans for the establishment of a museum auxiliary in connection with the local library are being pushed by members of the Society, who will there place collections now belonging to them. The Sauk County Historical Society is installing an already valuable collection in the city hall at Baraboo. To this various residents of the county are donating specimens.

The Wisconsin Society has no present intention of founding an archeological museum of its own, such collections and specimens as it secures being placed in the care and keeping of various deserving institutions. Many public-spirited Wisconsin collectors are coöperating with the Society by placing their collections or duplicate materials at its disposal. Others have indicated that they will do so in the near future.

Beloit College is the only Wisconsin institution of learning now offering a course in American archeology. This year 40 students attended the lectures. Several years ago Wisconsin University undertook to establish such a course, but the instructor in charge became ill and has not yet been replaced. Courses in classical archeology are given in several other institutions in the state. During the present year an attempt will be made to secure the introduction of full courses in American archeology into at least several of the normal schools of the state. At Green Bay, a school collection

is being circulated by a member of the Society. At Milwaukee the Museum also circulates such collections, and lectures on local archeology are given by the public school instructor.

During eight months in the year the Wisconsin Society holds public meetings at which lectures and talks on local and American archeology are given by prominent members and educators. These are usually very well attended and have already done much to awaken an additional interest in the Wisconsin movement. During the summer months field meetings are frequently held and practical instruction in field work is given.

On May 26 of the present year the first state assembly of the Wisconsin Society was held at Carroll College, Waukesha. The program was devoted to addresses by leading archeologists and educators, pilgrimages to local mounds and sites, to special exhibits, and to the unveiling by the Waukesha Women's Club of an explanatory bronze tablet on the site of one of the most prominent local mounds. This gathering of members and affiliated societies was so well attended and successful that these assemblies will be made a permanent feature. On September 3-4 a similar gathering with appropriate exercises was held at Menasha in the historic Fox River valley, in another part of the state. At their request speakers are often furnished by the Society to various societies and educational institutions throughout Wisconsin.

At the 1905 Wisconsin State Fair, the Society caused to be made an archeological exhibit along educational lines in connection with which were displayed hundreds of specimens, photographs, casts, surveys, charts, and maps. It was visited by a very large number of people during the course of the Fair and was productive of great interest. At this year's Fair, a typical village of Wisconsin Ojibwa Indians was erected on the grounds as an educational feature. For this purpose the sum of \$2000 was contributed by the State Fair Board and Milwaukee business men. An open-air meeting was also held among the mounds on the Fair grounds.

The official organ of the Society is the *Wisconsin Archeologist*, a quarterly bulletin, now printed under state auspices, which reaches every educational institution and public library in the state as well as the reading tables of the leading institutions of learning, public

libraries, and scientific and historical societies of the United States. Five volumes of this well illustrated and interesting publication have now been issued.

Among the more notable of the Society's recent contributions to archeological knowledge may be mentioned: "The Native Copper Implements and Ornaments of Wisconsin," "Potsherds from Lake Michigan Shore Sites," "Summary of the Archeology of Winnebago County," "The Aboriginal Pipes of Wisconsin," and the "Summary of the Antiquities of Eastern Sauk County." There is now in press a "Record of Wisconsin Antiquities," in which will be given in abstract form a complete list, with references to the literature, of the antiquities of seventy Wisconsin counties. This will prove invaluable to the Wisconsin student and as a basis for future research.

With the aid of the Wisconsin Free Library Commission, traveling libraries of historical and archeological literature are being circulated in the state. Thousands of pamphlets, circulars, and books have also been distributed by the Society to students and public institutions. The State Historical Society has also recently published a Landmarks leaflet. Articles on Wisconsin archeology and the local movement have appeared in various magazines and in the reports and transactions of scientific societies. Through these various channels archeological literature is now being placed at the command of all residents of the state. The traffic in archeological materials is being discouraged and the manufacture and sale of fraudulent antiquities are diminishing under the Society's surveillance.

The Society owes its present success to the activity and interest of its ever-increasing number of members and patrons and to the intelligent coöperation of the Landmarks Committee. Its needs are the same as those of every active educational organization of its kind in the country. Up to the present time support has come almost entirely from its own membership. With but small means at its command it has already accomplished much. Additional funds for the prosecution of field work and researches along special lines, for the purchase of collections, and for other necessary work are required.

PUBLIC MUSEUM OF THE CITY OF MILWAUKEE

For the last twenty-four years this Museum has exhibited a steadily augmenting series illustrative of man and his works. Inasmuch as a curator has never been employed especially for the Anthropological department, the growth has been uneven and not altogether systematic.

The collections at present consist of casts of the more important remains of primitive man; several unmounted American racial skeletons; mounted skeletons of Europeans; casts of a series of skulls of races with casts of brain cavities of some of these; a number of North American Indian skulls; a series of about fifty portrait busts of various races of the globe; two life-size pictorial groups; a series of 46 "eoliths" from Kent, England; a series of about one thousand implements, cores, etc., from several of the more important caves of France; several hundred implements and other artifacts, etc., from the Swiss lake-dwellings; a considerable series of objects in stone and clay from various ruins of Mexico; a small series of Egyptian objects, containing two mummies with their coffins and one mummy portrait in wax and distemper, from the Greco-Roman period; scattering collections illustrating the archeology of other peoples, and a fairly strong collection of stone and copper implements, pottery, etc., of the mound-building, cliff-dwelling, and other North American Indians. Of recent artifacts there are fair series from various North American tribes, including the western Eskimo, together with some five hundred objects from the Filipinos, a considerable series from the Congo negroes, and lesser ones from many other places.

A special gift, kept separate from the main exhibit, is the Nunemacher collection which, with a considerable sum of money for its increase, was bequeathed to the Museum. It consists of an important series of arms and armor, containing a fine series of hand guns and pistols (exhibiting their development from the earliest to the latest types), porcelain, pewter, ivories, bronzes, and numerous other articles representing the arts of various races at various periods. Taken together more than thirty thousand anthropological specimens are shown in the Museum. In some instances these are exhibited in carefully labeled series with a view to conveying as

much information as possible, but the labeling is as yet very incomplete.

In addition to the inspection and occasional study of this material by the casual visitor, some of it is used before classes from the grammar schools of the city by the Museum lecturer, in the school room maintained in the building. From time to time special lectures are given to normal school classes by the director of the Museum. Several series of specimens illustrative of the arts of the prehistoric Indians of Wisconsin have been prepared and are circulated among the grammar schools of the city. Specimens of Indian copper work and of pipes have been used for the illustration of articles published in the *Wisconsin Archeologist* and the *Bulletin* of the Wisconsin Natural History Society. As the Museum has no publication other than its annual report, it has taken no official part in publishing.

Recently the trustees of the Museum have come into a considerable annual appropriation, a definite percentage on the assessed valuation of the city, for the making and maintenance of an historical museum. It is the intention to make this an anthropological museum in its broad sense. However, the income of several years will be required for the purchase of more ground and the erection of a large addition to the present building. It is intended that, when this income shall be available for the collection proper, the department shall be properly organized and important researches carried on.

MINNESOTA HISTORICAL SOCIETY

An extensive archeological collection was donated to this Society in November, 1905, by Rev. Edward C. Mitchell, D.D., a member of the Society's council and chairman of its museum committee. The collection is displayed for the benefit of the public, in fourteen large glass cases of the museum, adjoining the Historical Library, in the new capitol. It consists of aboriginal implements, weapons, and ornaments, which had been gathered by Dr Mitchell, during his residence of thirty-three years in St Paul, from nearly every state and territory of the Union, and to a smaller extent from many foreign countries. This donation comprises 21,500 objects of stone, bone, shell, horn, copper, pottery, and a few of brass, lead, iron,

glass, and wood. Dr Mitchell's collections from Minnesota are in two cases, presenting a very great variety of stone axes, hatchets, chisels, knives, spearheads, arrowheads, etc.; a fine series of pottery vessels, bone and copper implements, and fifteen skulls, exhumed from aboriginal mounds. From Wisconsin there are two cases, containing, besides many stone implements, a large number of copper implements and ornaments. Masses of copper are exhibited as mined by the Indians in the region of Lake Superior or as found by them in the glacial drift or on its surface. Various specimens illustrate the process of working the copper from its original masses to the finished knife, spearhead, or other article of use or ornament. In the Ohio case one of the shelves displays a remarkable cache, or hidden hoard, of 192 thin, finely chipped, flint spearheads or knives, nearly alike in form but differing in size, which were found together in Fulton county. From Arkansas and from Arizona are many fine specimens of Indian pottery, as bowls, vases, and bottles; and from Alaska, very interesting articles of horn, ivory, and bone.

Other important archeological collections also had been brought together for this Society by the late Hon. J. V. Brower, a member of the council and former chairman of its museum committee, who died June 1, 1905. This material comprises a vast number of specimens, in all exceeding 100,000, of stone implements and weapons, flakes, bone and copper ornaments, pottery, etc., partly from the modern Indians and partly from the ancient mounds throughout Minnesota and the region reaching west to the Rocky mountains and south to Kansas. The collections made by Mr Brower, and his field notes, with the large series of field notes and maps made by the late Alfred J. Hill aided by Professor T. H. Lewis, relating chiefly to the aboriginal mounds of Minnesota and adjoining states, are now being worked over by Professor N. H. Winchell for the Society.

The most valuable portions of these collections are designed to be displayed in five cases in the archeological museum in the new capitol. From the notes and maps Professor Winchell has in preparation a volume on "The Archeology of Minnesota," which had been planned by Mr Brower, to be published by the Minnesota Historical

Society in its series of *Historical Collections*. It should be added that considerable portions of Mr Brower's archeological explorations and studies were published by him in a series of quarto volumes, entitled "Memoirs of Explorations in the Basin of the Mississippi."

The secretary and librarian of the Society is Mr Warren Upham.

IOWA ANTHROPOLOGICAL ASSOCIATION

In October, 1903, The Iowa Anthropological Association was formed at Iowa City with twenty-eight charter members. In February following it held its first yearly meeting, at which the field of anthropology was discussed by various speakers and the relations thereof to geology, mineralogy, archeology, biology, sociology, education, and history were shown. Since then two annual sessions have been held. From the first the meetings of the Association have been well attended, while those that took place in 1906 were crowded. The principal topics considered at the yearly meeting of 1905 — those bearing most directly on the particular field covered by the Association — were the Okoboji Mound people in connection with the investigation of the mound and the finds made therein by Dr Duren J. H. Ward, and anthropological work for Iowa. Attention was given also to phases of archeology in Europe and in Japan, and the Association was informed as to the state of this science at Harvard University.

The yearly meeting of 1906 was held under the joint auspices of the State Historical Society and the Anthropological Association. "The Meskwaki Indians" (popularly known as the Foxes) was the chief topic presented, and this was discussed at some length in connection with the able papers read before the meeting which dealt with various phases of the history and life of these Indians.

The officers of the Anthropological Association for the current year are: President, Benj. F. Shambaugh; vice-president, J. H. Paarmann; secretary, Duren J. H. Ward; treasurer, Frederick E. Bolton; executive board — additional, Frederick J. Becker, William J. Brady, Isaac A. Loos, Frank A. Wilder, and B. Shimek.

STATE HISTORICAL SOCIETY OF IOWA

The work of the State Historical Society of Iowa along anthropological lines, since 1902, consists of (1) an anthropological sur-

vey of a portion of the state, and (2) an investigation of the Meskwaki Indians at Tama, Iowa. An account of the anthropological survey is given in the January, 1904, number of *The Iowa Journal of History and Politics* under the title of "Some Iowa Mounds—an Anthropological Survey." Some of the results of the Meskwaki investigation are given in the April, 1906, number of the same journal under the titles of "Meskwakia" and "The Meskwaki People of To-day." Other contributions to *The Iowa Journal of History and Politics* of an anthropological character are: "Historico-Anthropological Possibilities in Iowa," January, 1903; "Anthropological Instruction in Iowa," July, 1903; "First Yearly Meeting of the Iowa Anthropological Association," July, 1904; "The Problem of the Mounds," January, 1905; "Second Yearly Meeting of the Iowa Anthropological Association," July, 1905. These contributions, as well as the anthropological investigations, were made by Dr Duren J. H. Ward.

From the work on the Okoboji mound and among the Meskwaki extensive additions were made to the collections of the Society.

OTHER IOWA INSTITUTIONS

As a study anthropology has not been regularly introduced into any educational institution in Iowa. Professor Shambaugh gives each year a series of lectures on the elements of anthropology as an introduction to work in the Department of Political Science in the STATE UNIVERSITY. Professors Loos and Bolton also devote some attention to it as a background for certain features of their departments of Sociology and Education respectively. During the university year 1905-06 Dr Ward gave two free courses, one in anthropology and one in ethnology—seventy-two lectures in all—to students of the University, which were allowed to count as regular academic work. These lectures outlining the two sciences were well attended by students.

The DAVENPORT ACADEMY OF SCIENCES is slowly adding to its very valuable collection of anthropological material. This consists of mound and other Indian relics, and foreign and American journals and books. Each year the Academy has one or more lectures of an anthropological character in its public courses. In the course

of 1905 Rev. S. P. Verner appeared before the Academy with one of the African pigmies whom he had exhibited at the Louisiana Purchase Exposition in St Louis. His lecture attracted wide attention. In the course for 1906 Dr Ward gave an illustrated lecture on the Meskwaki, the interest in which was increased by the presence of four fully-costumed members of the tribe.

The SIOUX CITY ACADEMY OF SCIENCE AND LETTERS is making a collection of anthropological objects and is discussing the possibility of lectures on the science.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

The winter meeting of Section H (Anthropology) of the American Association for the Advancement of Science for 1902-03 was held in Washington, D. C., beginning late in December and extending into the new year. The vice-presidential address was given by Mr Stewart Culin, the title being "America the Cradle of Asia." The American Anthropological Association and the American Folk-Lore Society affiliated with Section H, and the general report of the meeting was published in *Science*, February 20, 1903. The address of the vice-president is published in the annual report of the Association.

The 1903-04 meeting was held in St Louis during Convocation Week of that year, the American Anthropological Association affiliating. The address of the retiring vice-president, Dr George A. Dorsey, was entitled "The Future of the Indian." The record of this meeting was published in *Science*, March 18, 1905.

The meeting of 1904-05 was held in Philadelphia, with the American Anthropological Association and the American Folk-Lore Society affiliating. The address of the retiring vice-president, Professor Marshall H. Saville, was entitled "Mexican and Central American Archeology." The record of the meeting appears in *Science*, March 24, 1905.

The meeting of 1905-06 was held in New Orleans. Owing to the fact that the American Anthropological Association was in session in Ithaca, N. Y., at the same time, section H was meagerly represented. A business meeting was held and the council concluded to print the address of the retiring vice-president, Dr Wal-

ter Hough, on "Pueblo Environment." This address was published in *Science*, June 8, 1906.

Section H did not participate in the meeting held at Ithaca, N. Y., June 28 to July 3, 1906, it being deemed inadvisable to hold a meeting at that time in view of the fact that many of the members would wish to present papers before the Fifteenth session of the International Congress of Americanists and also at the regular meeting in New York during the coming winter.

THE WYOMING HISTORICAL AND GEOLOGICAL SOCIETY

The Wyoming Historical and Geological Society has its home at Wilkes-Barré, in Wyoming valley, Pennsylvania, where it is housed in its own handsome brick building, provided under the will of the late Isaac S. Osterhout.

The Society was organized in 1858 and at present has a membership of about 325, of whom 134 are life members, having paid the required fee of \$100.

Besides the departments of History and Geology the Society has an Archeological department. The archeological collections contain about 30,000 specimens, principally of the stone age, which are displayed in glass-covered cases. These collections are rather unique in being composed almost entirely of specimens from the Susquehanna River region and northeastern Pennsylvania, to which localities the Society directs special attention. There is also a special archeological library for working purposes and an ethnological fund for making further additions to collections.

The Society has published nine volumes of annual Proceedings, containing only original matter, besides numerous pamphlets; it now publishes a volume each year. Among the articles published on archeology are: "Description of Indian Earthenware in the Collection of the Society," and "Report on Pottery of the Athens, Pa., Locality," by Harrison Wright, Ph.D.; "Report on Susquehanna River Shell Heaps," by M. A. Sheldon Reynolds; "Silver and Copper Medals Presented to the American Indians by Sovereigns of England, France and Spain," by Rev. Horace E. Hayden; "Early Smoking Pipes of the North American Indians," by A. F. Berlin; "Remains of the Stone Age in Wyoming Valley and along

the Susquehanna River" and "Aboriginal Pottery of the Wyoming Valley-Susquehanna River Region," by Christopher Wren. The Society has issued also "Reports on the Frontier Forts of the Region, Prior to 1783," by M. A. Sheldon Reynolds, and Capt. John M. Buckalew, of the Pennsylvania State Commission, and members of the Society.

The rooms of the Society are open free to the public on every week day; during the year 1905 there were 6,500 visitors, the number increasing each year. It is the effort of the officers and members of the Society to have it fill the place of an educational institution in the special fields which it covers, and the general public is coming to appreciate it more and more in that sense. Rev. Horace E. Hayden is the corresponding secretary and librarian, and Mr Christopher Wren fills the office of curator of archeology.

THE DELAWARE COUNTY INSTITUTE OF SCIENCE

The scientific work of this Institute, whose headquarters are at Media, Pa., consists of lectures and of articles published in its Proceedings. Among the original anthropological work to which the Institute lays claim is the taking of a number of excellent photographs of El Morro, or Inscription Rock, in New Mexico, by Homer E. Hoopes, with new and corrected translations by Henry L. Broomall. A valuable find of Indian relics along the river bank in the city of Chester, Pennsylvania, has been made by T. Chalkley Palmer, the results of which have been published by the Institute in its Proceedings and the collections deposited in its museum. The Institute has also a quite complete collection of local Indian relics. Beyond this its work has been confined to the re-arrangement and representation of matter already known. The recent articles and lectures on anthropological subjects with which the Institute has been concerned are: "The Great Wall of China," by Jacob B. Brown; "Significance of Errors in Speech," by Henry L. Broomall; "The Pueblo Indians and the Enchanted Mesa," "The Hopi Indians and the Snake Dance," "Hopi and Navaho Indians"—three lectures by Homer E. Hoopes; "Russia," by Jacob B. Brown; "Errors of Speech," by Henry L. Broomall; "Japan," by Professor Hondo, of

Tokio; "The Conflict of Languages," by Henry L. Broomall; "The Caroline Islands," by Dr Furness; "Italy," by Dr A. R. Easby; "The Origin of Language" and "The Material of Language" — two lectures, by Henry L. Broomall; "The Campanile," by Jacob B. Brown, and many others.

ETHNOLOGICAL SURVEY FOR THE PHILIPPINE ISLANDS

A bureau for ethnological work in the Philippines was organized in Manila by the United States Philippine Commission in October, 1901, under the name "Bureau of Non-Christian Tribes." In August, 1903, the name of the Bureau was changed to "The Ethnological Survey for the Philippine Islands," and the scope of the work was enlarged to include the so-called Christian peoples as well as the Pagans and Mohammedans.

When the work was organized it was placed under the direction of Dr D. P. Barrows, who retained his position as chief until October 13, 1903, when he resigned. Dr Albert Ernest Jenks became a member of the Bureau in May, 1902; in July he was made assistant chief, and became chief October 13, 1903, on the resignation of Dr Barrows. Dr Jenks resigned his position August 3, 1905. Dr Merton L. Miller entered the Bureau as assistant chief in January, 1904, and became acting chief in entire charge of the work in August, 1905, on the resignation of Dr Jenks. In November, 1905, the Survey became a division of the Department of Education, with Dr Miller as chief of the division, which position he still retains.

The work of the Survey falls under four heads: (1) exploration among the wild peoples; (2) investigation and report on practical operations of all legislation affecting the non-Christian peoples, and recommendation of new legislation for such peoples; (3) publication of scientific ethnological data; and (4) collection of ethnological museum specimens.

The work of exploration was decided on and determined by the enabling act which, in the following language, clearly hinted at the paucity of accurate knowledge at hand: The Bureau was "to conduct systematic investigations with reference to the non-Christian tribes of the Philippine Islands, in order to ascertain the name of each tribe, the limits of the territory which it occupies, the approx-

imate number of the individuals which compose it, their social organizations, and their languages, beliefs, manners, and customs," etc. The scope of the investigations of the Bureau was greatly enlarged by the act of 1903, since thereafter the Bureau was to "conduct systematic scientific researches in anthropology and ethnology among all inhabitants of the Philippine Islands. The head of any department of the Insular Government may, through the Secretary of the Interior, call upon the Ethnological Survey to make investigation and report on any matters referring to the inhabitants of the Philippines upon which information is required."

Exploring parties have visited the aboriginal Negrito peoples everywhere they are known to exist in any considerable numbers in the islands, except in northeastern Luzon; this means explorations in western and northern Luzon, northern Mindanao, and the islands of Negros and Panay. The extensive mountain area of northern Luzon has been penetrated in many places, although two entirely new exploring trips must yet be made: one along the eastern mountain range, the Sierra Madre; the other across the Cordillera Central near the northern part of the island. The peoples visited in this extensive mountain area are the head-hunting Igorot — the Bontoc, Lepanto, Benguet, and Quiangan — and the Kalinga, Tinguian, and Ibalao. The island of Mindoro has been crossed in its wildest central part, but only scant traces of the timid Mangiyan people were found there. However they hold the entire island, except for a few Christian Tagalog people in small villages on the northern shores, and small Christian Visayan villages on the southern shores.

The island of Paragua has been penetrated at several points, and the Tagbanua and Batak peoples visited. In Mindanao exploring trips have been made among the wild Manobo, Bagobo, Bilan, and Subano peoples, and the Montesque of the northern part. The Maguindanao Moros of the southern coast of Mindanao have been visited and studied in half a dozen places, as have the Samal Moros of the Zamboanga peninsula. To visit the peoples in Mindanao two trips have been made southward up the Agusan river from the north coast, one journey turning eastward over the mountains to the Pacific ocean, the other continuing across the island to the Gulf

of Lanao. The Lake Lanao Moros were visited, for which purpose a trip was made across Mindanao from south to north. Misamis province has been penetrated deeply from the north coast among the wild mountain people and the Moros. The Yakan Moros of Basilan island have been visited on both the northern and southern shores; and the Sulu Moros in the Jolo archipelago have been studied. Other smaller islands containing non-Christian peoples have been visited, and most of the larger islands, where the so-called Christian culture is found, have been touched in the numerous journeys by members of the Survey.

The advisory administrative work of the Survey has been varied. Numerous investigations have been made to see that the wild people understood quarantine restrictions during epidemics; to see that they were not imposed on by officious native Christian or Mohammedan officials; and to study the effect of existing legislation. Legislation has been recommended to the Commission by the Survey and several such recommendations have been passed as acts by the Commission.

Until the organization of the Moro province, June 1, 1903, under General Leonard A. Wood, all the Mohammedan peoples were under the paternal arm of a resident member of the Survey called "Agent for Moro Affairs." When the government for the Moro province was organized, the then agent, Dr N. M. Saleeby, was rewarded for his good service with appointment as superintendent of schools and a member of the provincial council. Another at one time efficient member of the Survey, Mr William A. Reed, has been governor, during the last three years, of the pagan province of Lepanto-Bontoc.

The scientific publications of the Survey are the following:

- Vol. I. The Bontoc Igorot, by Dr Albert Ernest Jenks, p. 1-266, 154 pl., 9 fig.
- Vol. II, part I. The Negritos of Zambales, by William Allan Reed, p. 1-83, 62 pl., 2 fig.
- Vol. II, part II. The Nabiloi Dialect, by Prof. Otto Scheerer, p. 85-178, 28 pl., 6 fig.
- Vol. II, part III. The Batak of Palawan, by Lieut. E. Y. Miller, p. 179-199, 6 pl.
- Vol. III. Augustinian Relations (Archaic Spanish edition), compiled by Father Angel Pérez, p. 1-411, 7 pl.

- Vol. III. (In preparation) Augustinian Relations (English edition), compiled by Father Angel Pérez.
- Vol. IV, part I. Studies in Moro History, Law and Religion (Maguindanao Moros), by Dr N. M. Saleeby, p. 1-107, 16 pl., 5 diagrams.
- Vol. IV, part II (in press). Studies similar to vol. IV, part I, on the Sulu Moros.
- Vol. V, part I (in press.) The Tinglayan Igorot, by Dr Daniel Folkmar.
- Vol. V, part II (in preparation). The Subano People, by Emerson B. Christie.
- Vol. VII (in preparation), by Dr Merton L. Miller, will be a general résumé of all ethnological data collected by the Survey. It will be more comprehensive than detailed, and will suggest a hundred interesting and important ethnological problems.

In October, 1901, the Philippine Museum of Ethnology, Natural History, and Commerce was organized by the Commission and placed under the chief of the Ethnological Survey for administration. The museum collections of the Survey were sent to the Philippine Exposition at St Louis in 1904 and numbered there about 18,000 specimens. Of that number some 5,000 were returned to Manila and became the nucleus of an extensive collection which it is hoped soon to house in a suitable new building. Much of the energy of the Survey during the years 1903-04 was expended, in connection with the Philippine Exposition Board, in gathering museum specimens and groups of native people for the Exposition. Representative community groups of peoples, usually numbering forty or more individuals and composed of families, were gathered, sent to St Louis, and exhibited at Government expense. The chief of the Survey spent ten months at St Louis in charge of the museum collections. Among the groups of peoples exhibited were Christian Visayans, Mohammedan Lanaos and Samals, and pagan Tinguian, Mangiyan, Bontoc and Lepanto Igorot, Bagobo, and Negrito communities.

Regarding the future work of the Ethnological Survey the Honorable Dean C. Worcester, Secretary of the Interior, in whose department the Bureau was organized and where it remained until the retrenchment act of November 3, 1905, has the following to say in his annual report for 1905:

Supervision and control of non-Christian tribes outside the Moro Province has by Acts Nos. 1396 and 1397 been given to the Secretary of the Interior,

while at the same time the work of the Ethnological Survey has been transferred to the Bureau of Education. This change has been made in order that the Survey may utilize during the vacation period of each year the services of school-teachers who are generally distributed throughout the archipelago. The new arrangement is open to the objection that it removes from the department charged with the supervision and control of non-Christian tribes the only agency which now exists for gathering information regarding them and for investigating the practical operations of the special laws enacted for them, except in so far as investigations can be made by the Secretary of the Interior in person. It remains to be seen whether the increased amount of information gathered through the bringing of school-teachers under the immediate control of the officer in charge of the Ethnological Survey work will compensate for the difficulties necessarily involved in this arrangement. In view of the experience of the Smithsonian Institution in attempting to use school-teachers for ethnological work in the United States, I doubt the wisdom of the change, which will, however, be conclusively determined by actual experience.

BERNICE PAUHI BISHOP MUSEUM

The Department of Ethnology of the Bernice Pauhi Bishop Museum of Polynesian Ethnology and Natural History, at Honolulu, H. I., has been studying the Hawaiian portion of the Polynesians and has published, since the last session of the Congress, the following Memoirs in quarto: "Stone Implements of the Ancient Hawaiians" (p. 100, 1903); "Hawaiian Mat and Basket Weaving" (p. 105, 1906); "Old Hawaiian Carvings" (p. 20, 1906), all by W. T. Brigham; "Hawaiian Nets and Netting," by John F. G. Stokes (p. 57, 1906).

In the Occasional Papers, 8vo.: "Remarks on Phallic Stones from Rapanui," by J. L. Young (vol. 11, p. 171); "Aboriginal Wooden Weapons of Australia," by Leopold G. Blackman (p. 173).

During the same period the Museum has been steadily accumulating facts and specimens illustrative of former human life on other Pacific islands. Its collection of Hawaiian antiquities is now by far the most complete in existence, and its authentic collections from other groups in the Pacific region are very large. All these it is the policy of the Museum to study, illustrate, and publish in its Memoirs and Occasional Papers.

THE WORK OF INDIVIDUALS

Aside from the studies in American anthropology conducted officially or personally by those regularly associated with universi-

ties, museums, and other institutions, to which brief reference has been made, a great amount of investigation has been prosecuted by others in no way connected with such institutions, but who pursue their studies through love for the subject and who in the end usually make public museums the beneficiaries of their collections and the public generally the wiser for the knowledge they have gained.

CLARENCE B. MOORE

Noteworthy among the students of this class is Mr Clarence B. Moore, of Philadelphia, whose excellent memoirs in the *Journal* of the Academy of Natural Sciences of Philadelphia, all the result of his personal excavation and studies of Southern mounds, have been justly characterized as forming the most important contribution to American archeology that has ever been made under private auspices.

It is Mr Moore's plan, during the summer preceding the work, which is usually carried on in the winter season, to send agents expert in mound investigation over the region to be investigated and personally to visit each mound which may be heard of through most diligent inquiry. A list of these mounds and of the names and addresses of their owners is sent to Mr Moore, who obtains in advance permission to dig. The work is done from a flat-bottomed steamer sufficiently large to accommodate more than thirty men. All work is conducted under Mr Moore's personal supervision, with the aid of Dr M. G. Miller, who, since the beginning of the field investigations in 1891, has had charge of the anatomical work of the expeditions.

The first part of the season of 1903 was given to the investigation of Apalachicola river, Florida. In the mounds of this river was noted the influence of the northwestern coast of Florida (which had been investigated in 1901 and 1902), including the mortuary deposit of earthenware in the eastern margin of mounds, made for the dead in common, and the presence of excised decoration on the bodies of vessels. A heavy flood ended the work at the point where the Chattahoochee and Flint rivers form the Apalachicola. The rest of the season of 1903 was devoted to the lower Suwannee river (Florida) and to the western coast of central Florida from Suwannee

river to Tampa bay, which, respectively, were approximately the southern limit of Mr Moore's work in 1902 and the northern limit of his investigation in 1900. The most noteworthy work on this coast was the investigation of the great place of burial near the mouth of Crystal river, where numbers of pendants of shell, of limestone native to the region, and of hard stones not found in Florida, including rock-crystal and amethystine quartz, were found. Many pendants of native copper also were encountered, of the same shapes as the pendants of shell and of stone; interesting ear-ornaments of sheet-copper were met with, some coated with silver.

In the early part of the season of 1904 the mounds of Lake Tohopekaliga, in the Kissimmee region, Florida, were visited with almost negative results. The remainder of the season was given to the southwestern coast of Florida, beginning at Charlotte Harbor and continuing down through the Ten Thousand islands, around Cape Sable and up through the Keys to Miami, on the east coast, ending at Lake Worth, the southernmost limit of Mr Moore's investigation of 1896.

The season of 1905 was begun with the circuit of Mobile bay, Alabama, and the investigation of points somewhat to the northward. Next, the mounds of Mississippi sound as far as Biloxi, Mississippi, were examined without satisfactory result. Next, the lower Tombigbee river, Alabama, was investigated, going northward from its union with Mobile river to Bickley landing, where the work on the river for the season of 1901 had ended. The entire Tombigbee river yielded most uninteresting results. The remainder of the winter of 1905 was devoted to an examination of the antiquities of the Black Warrior river, Alabama, from its junction with the Tombigbee to the city of Tuscaloosa, including the famous group of mounds and cemeteries at Moundville. Most interesting discoveries awaited Mr Moore at this place, including the swastika (earthenware and copper); the plumed serpent, also skulls and arm-bones resembling those shown in Mexican codices, engraved on earthenware; many ceremonial stone palettes for paint; and a superb vessel, probably of diorite, with arching neck and head of a wood-duck, rising above the bowl, the limit of aboriginal endeavor in stone thus far met with in the United States.

Part of the autumn of 1905 (really the beginning of the season of 1906) was spent among the mounds of lower Flint and lower Chattahoochee rivers (Florida, Georgia, and Alabama), beginning where work on Apalachicola river had ended in the season of 1903. But little work was done on Flint river, but the Chattahoochee showed the influence of the coast, as the Apalachicola had done, for a distance of about fifty miles northward, above which limit burial mounds were not encountered. Presumably the domiciliary mounds, which are numerous, have cemeteries in connection, but except in a single instance Mr Moore was not successful in finding them.

In the beginning of the winter of 1906, Crystal river, Florida, was revisited, and what remained of the cemetery there was completely dug through. Among other objects of interest, an ear-plug of sheet copper, overlaid with meteoric iron, was found. The remainder of the season of 1906 was devoted mainly to work among the Ten Thousand islands, off the southwestern coast of Florida, where parts of the seasons of 1900 and 1904 had been spent. It was at Marco, it will be remembered, a settlement on one of these islands, that Mr Cushing made his great discovery of prehistoric objects of wood—a discovery which will not be duplicated, there is reason to believe, as, in all probability, the deposit of these objects in the mud arose from some special cause. At all events, much digging in the mud at Marco and elsewhere among the Keys has not been productive.

Full accounts of Mr Moore's archeological work may be found in the *Journal* of the Academy of Natural Sciences of Philadelphia (the principal objects obtained during the field work have been placed in the Academy), under the following titles :¹

Certain Aboriginal Mounds of the Apalachicola River, Vol. XII.

Certain Aboriginal Mounds of the Central Florida West-coast. Vol. XII.

Miscellaneous Investigation in Florida. Vol. XIII.

Certain Aboriginal Remains of Mobile Bay and Mississippi Sound. Vol. XIII.

Certain Aboriginal Remains of the Lower Tombigbee River. Vol. XIII.

¹ Mr Moore generously announces that he will gladly furnish gratuitously to members of the Fifteenth International Congress of Americanists some of the above-mentioned publications, on written application to him at 1321 Locust st., Philadelphia, Pa.

Certain Aboriginal Remains of the Black Warrior River. (Moundville.) Vol. XIII.

Mounds of the Lower Chattahoochee and of the Lower Flint Rivers. (Not yet published.)

Crystal River Revisited. (Not yet published.)

Notes on the Ten Thousand Islands. (Not yet published.)

GERARD FOWKE

One of the most active of American archeologists is Mr Gerard Fowke, whose services have been commanded by various institutions, especially for researches in the Mississippi valley. In 1902 he examined, for the Bureau of American Ethnology, the extensive flint deposits along Tygart river, Kentucky, discovered by him some years before, from which nearly all the flint implements found along the middle Ohio river are derived. An immense amount of quarry work was done here by the aborigines, mostly by drifting in from the outcrop on the slopes, although in many places pits were sunk from the surface. The workings extend, irregularly and with many intervals, over an area of several square miles.

In October of the same year Mr Fowke participated in the investigations, conducted under the auspices of the Bureau of American Ethnology, at Lansing, Kansas, where the remains of the so-called "Lansing man" had been unearthed. The work of enlarging the tunnel in which the bones were found was conducted under Mr Fowke's personal supervision.

In April, 1903, in a hematite quarry near Leslie, Missouri, several hundred grooved hematite hammers were discovered, evidently used by aborigines in breaking up the material. The ancient miners had reached the ore by digging through the overlying soil and clay, and after removing so much of it as they uncovered in this way, had made tunnels in various directions through the iron. The principal object seemed to be to secure material for paint; there is much variation in hardness, some of it being so dense that modern drills make no impression on it, while in other spots it is so soft as to be easily ground fine with stones. Marks of tools were plainly visible wherever the primitive workers carried their tunnels, some of them due to the hematite or stone hammers,

others to pointed flint chisels. At one place, on the surface of the ground, now removed by the ore-diggers, was a deposit of hematite chips, evidently due to flaking in the manufacture of axes, celts, etc. This deposit contained several large wagon loads; while the entire amount of prehistoric labor probably involved the removal of several hundred tons.

The vast quantity of hornstone disks found in one of the Hopewell mounds near Chillicothe, Ohio, aroused some curiosity as to the source of the material. None like it is found in Ohio. There is a deposit near Trenton, Kentucky; another in Union county, Illinois; a third, more extensive, in the vicinity of Wyandot Cave, Indiana. There are probably others, but their situation has not yet been made known to archeology. Similar disks are reported, in limited numbers, from Mt Sterling, Kentucky. The Indiana flint has been known for many years, through an erroneous report regarding its occurrence in the cave; erroneous, that is, as concerns the method of working. The hornstone extends from Indian creek to Buck creek, and from the Ohio river an irregular line two or three miles north of that stream. Beyond that line the material is unfit for chipping. It is also reported in Meade county, Kentucky, but it is not known that any ancient quarrying was carried on in that direction. A great amount of excavating and chipping was done along the hillsides in the area mentioned, and it was thought possible to discover the workshop where these disks were made. But no spot is to be found where broken or imperfect disks occur. The hornstone occurs only in the form of nodules, spheroidal, ellipsoidal, or irregular in form, and so far as known is more easily wrought than any other. Only the larger nodules, of fine grain and susceptible of easy chipping, were used for the disks; and when one of these was broken or otherwise spoiled for such use, the fragments were manifestly used for making smaller implements. Hence no imperfect disks are found.

Except for the examinations described, Mr Fowke's time from April to November, 1903, was spent in examining caverns, under the auspices of the Carnegie Institution, for remains of cave or paleolithic man. Some two hundred caves were visited, in Indiana, Illinois, Kentucky, Tennessee, and Alabama. Nearly all of these

proved to be in such situation, or of such nature, that they are not and probably never were at all fitted for human occupancy, except as mere temporary shelters. Of those examined, some had no evidence of habitation; others seemed to have been used for long periods. But in every case where any such traces were found, they were exactly correspondent to those about modern, or known, Indian villages; and they invariably ceased abruptly at a given plane below which not a trace of anything was found that seemed due to human agency.

The region within a hundred miles north and south from the mouth of the Missouri has yielded many thousands of implements of numerous forms, made of the same material—a white or cream colored, fine-grained chert, with tints of pink, red, or brown, from oxidation. Stone much like it is found in small quantities in several places; but the only extensive deposit showing ancient quarrying is in Jefferson county, Missouri, beginning at the Meramec river and extending several miles toward the south and southeast. This deposit (an impure, fragmentary, stratified chert, only a small part of which is fit for flaking), which was investigated by Mr Fowke in July, 1904, is a narrow outlier, forming the cap-rock of a winding ridge; in some places it is fifty feet thick. The lowest layer seems to have been most sought. Where erosion had removed most of the overlying material, pits were dug, but for the greater part the excavations were at the outcrop along the hillsides. In at least two places tunnels were carried in for quite a distance.

Shortly afterward a large cave near Arlington, Missouri, overlooking the Gasconade river, was partially excavated. Artificial remains were found to a depth of $6\frac{1}{2}$ feet, being uniform in character from top to bottom. They terminated abruptly on mingled rock and clay, the original floor of the cave. At one point, beneath the modern debris of the floor, were (1) several layers of kitchen refuse distinctly stratified; and (2) an unbroken layer of roof-dust 2 to 4 inches thick; in all, fully 2 feet of material accumulated during Indian occupancy. Under all this was a piece of glass bottle. The roof-dust in a dry cave is the equivalent of stalagmite formations in a wet one.

The great number of "hoes" and "spades" found within a

radius of 100 miles around the mouth of the Ohio river, led years ago to a search for the yellow or gray chert of which they are made. In September, 1886, Mr Fowke discovered that the quarries are situated in Union county, Illinois, near Mill Creek. While making further investigations, in August, 1904, he found in the same county two other deposits, extensively quarried. One is the nodular blue or gray hornstone, above mentioned; the other a peculiar siliceous rock, which varies from a very compact, fine-grained, slightly translucent stone, like novaculite, to a cellular, porous rock like buhrstone or even coarser. The entire deposit does not cover two acres, and the aborigines dug out all they could reach.

From western Tennessee come many objects of unique forms made from a brown flint containing minute fossils or quartz crystals. Some of them are very large, one specimen owned by the Missouri Historical Society being $27\frac{1}{2}$ inches long, $1\frac{1}{8}$ inch wide, and nowhere more than $\frac{1}{4}$ of an inch thick. Large disks, "daggers," and curiously carved objects are also found. Mr Fowke has made three trips to western Tennessee, on what proved to be false clues, in search of this deposit, but was always unsuccessful. The last was to the neighborhood of Clifton, Tennessee. He did not find what he was in search of, but discovered that the primitive inhabitants of that region obtained great numbers of nodules and fragments of chert from the beds of streams and from ravines along hillsides, quarrying being unnecessary. In one workshop Mr Fowke found half of a large "celt," with the diamond-shaped section rather common in the material of which he was in search. The surface was the typical brown or grayish-brown color characteristic of these odd forms; but the interior, as revealed by the recent fracture, was dark-blue in color, though not of the shade or of the texture of hornstone.

In exploring a group of mounds in September and October, 1905, at Montezuma, Illinois, ranging in height from 4 to 23 feet, Mr Fowke found in one of them, $6\frac{1}{2}$ feet below the top, in undisturbed earth, a molar of the existing horse. Later in the season excavation of two low mounds of the Cahokia group near East St Louis, Illinois, gave results indicating that these mounds were used for habitations. There was a horizontal stratum of ordinary kitchen refuse

on a foundation of "gumbo"; above this was a deposit of sand. Two skeletons were found near the margin of one mound, but no evidence of burial appeared within several yards of the center.

Early in the present summer Mr Fowke was engaged in the excavation of mounds about the mouth of the Osage and Gasconade rivers, Missouri, in which were disclosed burial vaults made of flat stones laid up like a stone wall. The interior faces were either vertical or sloping outward toward the top; the walls were held in place by earth, or stones, or both, piled against the outer side. The largest found there was $7\frac{1}{2} \times 10$ feet and $4\frac{1}{2}$ feet deep, built on the surface and covered with earth. It contained remains of 20 bodies, including five that had been cremated. Later Mr Fowke discovered similar vaults in mounds in Boone county, Missouri. Two of these had other vaults built upon the earth with which they were filled. In each case the bottom of the original vault was covered with cremated human bones, some bodies having been burned where found, others elsewhere and the fragmentary bones carried to the spot and thrown in little piles, each lot to itself. The upper, or secondary, vaults also contained cremated bones. The largest vault was 7×11 feet on the bottom (inside measurements) and $3\frac{1}{2}$ feet high. All these vaults had an opening or doorway in the south or southwest wall. They are undoubtedly the same class of structures as have been reported as "Indian houses" or "underground houses," and are said to resemble in some respects burial places constructed rather recently by the Osage Indians, who, it is known, once occupied this region.

GEORGE G. HEYE

Noteworthy among private collections in American ethnology and archeology made during recent years, if not, indeed, during any period, is that of Mr George G. Heye of New York City. Mr Heye has been interested for several years in the collection of anthropological material, but systematic work in this direction was not begun by him until 1904. At the present time his collection contains more than thirty thousand numbered specimens, the majority of which were obtained through the purchase of private collections. The largest and best known are as follows:

The Sherman collection, consisting of Massachusetts and Connecticut valley stone specimens.

The J. E. Mattern collection of Ohio gorgets and other stone material.

A collection of stone gorgets and other stone specimens from southern Ohio, numbering in all several hundred pieces.

The Dr Joseph Jones collection of Southern material, a description of which has been given in the Smithsonian *Contributions to Knowledge*.

The Dr A. W. Getman collection of stone, bone, and pottery objects from Jefferson county, New York.

The Henry Booth collection of stone and other material from the United States and Europe.

The M. F. Savage collection of stone and pottery from the Middle states.

The L. H. Brittin ethnological collection from the Plains Indians

The greater part of the Joseph Keppler collection of Iroquois material and ethnological specimens from the Plains tribes, combined with the Heye collection through the interest of Mr Keppler.

The Henry Hales collection of pottery, stone, and shell, from Socorro county, New Mexico.

A representative collection of prehistoric pottery from northern Arizona, made by J. L. Hubbell.

The Northwest Coast pipe collection, made by Lieut. G. T. Emmons, U. S. N.

A collection of Tahltan material from British Columbia, made by Lieutenant Emmons.

Two collections of pottery from the Valley of Mexico, made by Dr Guillermo Bauer.

Two Zapotecan collections, made by Americans having business interests in Mexico.

A collection of material mostly from the Valley of Mexico.

A collection of Tarascan pottery from Michoacan, Mexico.

The C. P. Mackie Mexican collection.

A collection of pottery and nearly five hundred objects of prehistoric gold jewelry from Ecuador, made by D. C. Stapleton.

A collection of eighty-five large gold objects from Chiriqui, Central America, made by a mining engineer.

A collection of Chiriqui, Costa Rica, and Porto Rico stone and gold material, made by Mr Frank Utley.

The Rev. Thomas T. Huckerby collection of stone objects from St Vincent.

EDWARD ANTHONY SPITZKA

The researches of Dr Spitzka have been concerned chiefly with problems of cerebral morphology, development, and heredity, particularly in the Primate series. He has been interested also in the relations of mental abilities with variations in brain-form. The material for these studies has consisted chiefly of race brains, brains of notably intellectual men, and those of criminals. Dr Spitzka's studies may be grouped as follows:

(1) Brains of races: Eskimo, Papuans, Japanese, Negroes, Andamanese, Nicobarese, etc.

(2) Brain-weight: Japanese.

(3) Brains of intellectual men: Edward Seguin and his son, Edward C. Seguin, Major J. W. Powell,¹ George Francis Train, Major J. B. Pond, Professor E. D. Cope (and skull), Prof. Joseph Leidy, Dr Philip Leidy, Dr William Pepper, Professor Harrison Allen, Dr A. J. Parker.¹ Dr Spitzka's studies on Cope, P. Leidy, J. Leidy, Pepper, Allen, and Parker will be published in the *Transactions* of the American Philosophical Society of Philadelphia.

(4) Brain-weight of intellectual men as compared with ordinary population.

(5) Brains of criminals: Leon F. Czolgosz (the assassin of McKinley) and seventeen others. Dr Spitzka's studies on these tend to disprove most of the contentions of the Lombroso school regarding an alleged criminal type of structural anatomy.

(6) Brains of blood relatives: The three Van Wormer brothers; the Drs Seguin, father and son; Eskimo, father and daughter; the two Leidy half-brothers; and demonstration of hereditary resemblances in cerebral surface configuration.

(7) Description and naming of the postorbital limbus, a formation occasionally met with at the base of the brain (*e. g.*, Cope; Parker; Japanese; Papuans, etc.).

(8) The form of the empty and contracted heart and the form of the empty and contracted stomach, as observed in criminals executed by electricity and immediately examined post-mortem.

¹ *American Anthropologist*, vol. V, no. 4, 1903.

(9) Mental phenomena presented by the Duchobors of Canada in recent epidemics of religious fanaticism.

(10) Mental state of assassins. These are found to be not necessarily insane, as they are often believed to be. The percentage of lunatics among regicides is found to be not noticeably greater than among ordinary murderers.

(11) A study of lynching in North America.

STANSBURY HAGAR

Since the Thirteenth session of the Congress of Americanists at New York, at which he presented a paper on "Cuzco, the Celestial City," designed to show that the plan of the city seeks to reproduce the supposed design of the sky, including the pole, milky-way, and zodiac, Mr Hagar has continued his studies on the astronomical symbolism of ancient Peru, which he hopes soon to publish. In 1904 Mr Hagar issued a third preliminary paper on the subject, "The Peruvian Ritual," showing that each of the Peruvian monthly festivals reproduces the aspects and attributes of the zodiacal sign through which the sun was passing at the date of the festival. This paper was presented to the Congress of Americanists and reprinted in *The American Antiquarian*.¹ A paper on the "Star-lore of the Cherokees" will be published shortly. It embodies the results of field work among the Cherokee of North Carolina and shows many analogies between their stellar legends and those of neighboring and even of distant tribes. Mr Hagar has also completed a study of the "Astronomy and Astrology of the American Indians," covering the sources of information, cosmogony, ritual, calendar (briefly), astrology, and stellar myths and legends. Under all these heads there is found a marked unity of thought throughout North and South America, with much that seems distinctive in America, and much, especially in Peru, that offers marked analogies with astronomical concepts of the Old World. Mr Hagar is also completing a study of intercommunication with the dead, worship of the dead, and demons, among the American Indians, showing the wide prevalence among them of beliefs akin to modern spiritualism, but independent of it, and a widespread and elaborate worship of ancestors and spirits.

¹Vol. XXVI, pp. 329 et seq.

G. FREDERICK WRIGHT

Dr Wright has continued investigations bearing on the relations of man to the Glacial epoch—a subject of interest and importance in determining the period of the earliest remains in America and in furnishing a clue to the conditions surrounding man in his earliest known stages. In the words of Dr Wright:

Evidence of the presence of man in America toward the close of the Glacial epoch continues to increase. The most important is that discovered at Lansing, Kansas, and brought to the notice of the public by Mr M. C. Long, of Kansas City, Missouri. This evidence has been studied with special care by Prof. N. H. Winchell, Dr Warren Upham, Prof. T. C. Chamberlin, and others; while I have spent much time at the immediate locality and in studying the general conditions.¹ The evidence consists of two nearly complete human skeletons found at the base of the loess which borders the Missouri river. According to Dr Hrdlicka and others, the type does not differ materially from that of the tribes of Indians which have continued to inhabit America, but in the opinion of Professor Winchell, Dr Upham, and myself, these skeletons were buried beneath the original loess which fills the valley. All agree that this loess was deposited at the close of what is known as the Iowan stage of the Glacial epoch, when the glacial ice extended to the center of Iowa. Professor Chamberlin attempts to prove that the loess at Lansing may have been worked over somewhat subsequently to the original time of deposit, but this has been warmly, and I think successfully, controverted by Professor Winchell and Dr Upham. Even then, however, the date would not be very much reduced.

A most interesting and important discovery bearing on the conditions in the midst of which the Lansing Man lived, was made by Dr Ball, of the Missouri Geological Survey, in 1902, the significance of which I have made a special subject of study.² The discovery consisted of several clusters of granitic boulders of large size from Canada which had been deposited at Tuscumbia, Missouri, in the valley of Osage river, 60 miles above its junction with the Missouri, and 40 miles south of the extreme

¹ For the literature of this interesting subject see Upham in *American Antiquarian*, xxiv, 413, 1902, and *American Geologist*, 135, Sept. 1902; Winchell, *ibid.*, Sept. 1902; Williston in *Science*, Aug. 1, 1902; Chamberlin in *Journal of Geology*, x, 745, 1903; Holmes in *Smithsonian Report*, 455, 1902, and *American Anthropologist*, iv, 743, 1902; Hrdlicka in *American Anthropologist*, v, 303, 1902; Upham in *Records of the Past*, 1, Sept. 1902; Wright, *ibid.*, ii, Apr. 1903. — EDITOR.

² *Records of the Past*, Jan., 1905, p. 15-26.

limit reached by the ice during the Glacial epoch. The only explanation of these bowlders is that during the final melting of the ice over the drainage basin of the Missouri annual floods two hundred feet in height were produced in that river for some time during the summers, while there were none in the Osage river, since it was outside the glacial region. This would permit icebergs bearing bowlders to float down the Missouri river, and be carried by a back current up the Osage to Tuscumbia, where they were stranded upon the recession of the flood. It was during this condition of things that the loess of the Missouri valley was mostly deposited. The Lansing Man must have witnessed these recurring floods, with all their disturbing effects.

But evidence continues to accumulate that the date of the close of the Glacial epoch is much more recent than was formerly supposed. Studies which I have made on the lateral enlargement of the Niagara gorge¹ and on the enlargement of the valley of the post-glacial streams of Ohio confirm and nearly demonstrate that the glacial ice did not melt off from central New York earlier than ten thousand years ago, and probably not until eight thousand years ago. These dates are now accepted by many of our most competent geologists. So that we may conclude that glacial man in North America and in western Europe was perhaps contemporary with civilized man in the valley of the Euphrates. This recent date of the close of the Glacial epoch will account also for the modern character of the Lansing skeleton.

Dr Wright is about to publish a volume, giving the results of his investigations during the last twenty-five years, in which he endeavors to show that everywhere in the northern hemisphere early man witnessed an instability in the geological conditions which is out of all analogy with the changes that are now taking place. In connection with Dr Nils Olof Holst, of Sweden, he has studied the elevated post-glacial beaches of Sweden, showing that remains of man were buried there previous to an elevation of land which amounts in the north to one thousand feet. Dr Holst has this year published the results of his work along these lines.

Much effort has also been devoted by Dr Wright to the establishment of a worthy popular archeological journal. *The Records of the Past* is now nearing the completion of its fifth year. This periodical, published in Washington, has largely been looked after

¹ *American Geologist*, March, 1902, p. 140-143.

by the associate editor, Mr Frederick Bennett Wright. Special attention is given to the abundant illustrations, while the articles are not only of a popular character but are sufficiently thorough to give specialists a general view of archeological work in every field. The contributions are from a wide circle of investigators of the most eminent character.

WILLIAM E. SAFFORD

Mr Safford, who has long been interested in the study of the ethnology of South American and Polynesian aborigines, availed himself of the opportunity afforded him as a lieutenant in the United States Navy to study the habits, customs, arts, and languages of the natives of those countries visited by him. His first work on Polynesian philology was in connection with the language of the Easter islanders, while attached to the U. S. S. *Mohican*, and was embodied in the paper on "Te Pito te Henua," by Surgeon George H. Cooke, U. S. N.¹ In this paper a number of Easter Island words were compared with corresponding words in various Polynesian and Malayan languages, establishing the interrelationship between them. This led to the study of Polynesian migrations, in which Mr Safford has ever since been interested. While acting as assistant governor of the island of Guam he took up the study of the language and ethnology of the aboriginal inhabitants, together with their methods of agriculture, and the botany of that island, and the result has been a paper on "Guam and its People."² Mr Safford then prepared a work on the "Useful Plants of the Island of Guam,"³ with an introductory account of the physical features and natural history of the island, of the character and history of its people, and their agriculture. This proved to be a veritable handbook of the island and of the economic botany of Polynesia. The vernacular names of nearly all the useful plants of Polynesia appear and are interesting in tracing the migrations of the people from group to group. Mr Safford had already written an account of the "Abbott Collection from the

¹ *Report of the U. S. National Museum for 1897*, pp. 689-723.

² *American Anthropologist*, 1902; revised and republished in the *Smithsonian Report for 1902, 1903*.

³ *Contributions from the U. S. National Herbarium*, vol. IX, 1905.

Andaman Islands,"¹ in which he gives an account of the islands and their history, and points out the interesting relationship of the Negrito-like inhabitants to Aetas of the Philippines and the resemblance of their peculiar sigmoid bows to those of the natives of New Ireland, and of Mallicolo of the New Hebrides group.

Mr Safford has also assisted in preparing a list of the vernacular names of the Hawaiian fishes published in the report on the "Aquatic Resources of the Hawaiian Islands," by Jordan and Evermann;² and a list of the Samoan names of fishes, about to appear in a later bulletin. These lists are interesting on account of the affinities they establish between widely remote peoples who have had no intercommunication during historic times.

In a series of articles on "The Chamorro Language of Guam,"³ Mr Safford goes quite extensively into the comparative philology of the languages of the Pacific islands, the Philippines and the Malay archipelago; and in a recent paper read before the Anthropological Society of Washington he calls attention to the Igorrot tribes of the Philippines as typical in language and customs of certain tribes of the ancient Polynesians, and showing many affinities with the ancient Chamorro of Guam. The interrelationship of all these islanders is clearly shown by their arts, language, social organization, and superstitions, as well as by the useful plants they have carried with them in their migrations. There is nothing in their entire ethnology to suggest American origin, but all points clearly to the Malay archipelago as the cradle from which they sprang.

Mr Safford is now engaged in a work on the useful plants of Mexico, in which he hopes to throw light on many questions involving the origin of cultivated plants.

HENRY PITTIER DE FÁBREGA

During the last five years (1900-1904) of his residence in Costa Rica, Dr Pittier de Fábrega continued his studies on the Indian languages of that country, perfecting his vocabulary and grammar of the Térraba language and collecting extensive material on the

¹ *Smithsonian Report for 1902, 1903.*

² *Bulletin of the U. S. Fish Commission for 1903, vol. XXIII, 1905.*

³ Published in various numbers of the *American Anthropologist*.

Cabécar and the Brunka. This linguistic material is now sufficient to enable him to prepare for each of these dialects a monograph similar in its plan and scope to his "*Sprache der Bribri Indianer*," published in 1898 under the patronage of the late Dr Friedrich Müller. The only remaining language not yet thoroughly recorded in Costa Rica is the Guatuso, now spoken by only a few Indians living in the Rio Frio valley, toward Lake Nicaragua. In the course of his investigations on the Costa Rican and Panamenian languages, and without any knowledge of Uhle's communication to the Seventh International Congress of Americanists at Berlin, in 1888, Dr Pittier determined certain well-established affinities between the idioms of the immense group recognized today as the Chibchan stock. A careful comparison of the available material enabled him to show that the languages of southern origin extended along the Atlantic slope of Central America as far as Honduras, and included several dialects the affinities of which hitherto had not been understood.¹ During the two last years he has profited by the opportunities of extensive explorations made in Central and South America in behalf of the U. S. Department of Agriculture, to whose staff he now belongs, to strengthen the Uhle-Pittier hypothesis, to gather missing links in the aboriginal languages of the region between the Isthmian tribes and those of the high plateau of Bogotá, and to determine the southern limit of this linguistic group. In January and February of the present year Dr Pittier made a new survey of the Paez language, spoken at the foot of the Huila, in the central cordillera of Colombia. In June and July he spent six weeks with the Kōggaba Indians, during which time he collected vocabularies. The first of these languages may be related to the Kichua; the last is decidedly Chibchan. Both had been studied before, but a large part of Dr Pittier's comprehensive lists of words is quite new and forms an important addition to our knowledge of South American aboriginal languages.

ALICE C. FLETCHER

Miss Fletcher has continued her ethnologic researches, particularly among the Omaha and the Pawnee Indians, and her study of

¹ See "*Numeral Systems of the Costa Rican Indians*," *American Anthropologist*, VI, no. 3, 1904.

the Pawnee version of an intertribal ceremony which once prevailed over a large part of the Mississippi valley has been completed and published under the title "The Hako."¹ Miss Fletcher's investigations of the music of the Indians of the United States have also been continued; a number of graphophone records have been obtained and certain conclusions relative to the emotional characteristics of Indian songs and the forms used in their expression have been formulated in lectures. With the assistance of her collaborator, Mr Francis La Flesche, Miss Fletcher has been enabled to obtain the songs, rituals, ceremonies, etc., forming a cosmic drama and preserved in a secret society known among the Omaha tribe as the Shell Society; and arrangements have been perfected with the few surviving old men for a revision of her list of Omaha tribal names according to gentes and intermarriages, together with a review of her notes on former tribal ceremonies preliminary to their publication. Unfortunately severe illness has interrupted Miss Fletcher's work, but with rapidly returning health it will now be resumed and its valuable results published in the near future.

ZELIA NUTTALL

In addition to her investigations under the auspices of the Peabody Museum of Harvard University and of the University of California, noted above, Mrs Nuttall has devoted her attention during the last four years (meanwhile residing at Coyoacán in the valley of Mexico) to investigations and researches in local Mexican archeology, ethnology, folklore, and history. Mrs Nuttall has made a special study of the archeology of her neighborhood, which was the ancient home of the powerful Tepanec tribe that was subjugated with difficulty by the Aztecs. Her publications since 1902, in addition to those previously mentioned, are:

A Suggestion to Maya Scholars. (*American Anthropologist*, v, no. 4, 1903.)

The Periodical Adjustments of the Ancient Mexican Calendar. (*American Anthropologist*, vi, no. 4, 1904.)

Some Unsolved Problems in Mexican Archeology. (*American Anthropologist*, viii, no. 1, 1906.)

The Astronomical Methods of the Ancient Mexicans. (In preparation.)

¹ Twenty-second Annual Report of the Bureau of American Ethnology, part 11.

The preparation of part II of the "Life of the Ancient Mexicans" and of the map of the valley of Mexico by Alonso de Santa Cruz has progressed considerably, notwithstanding the fact that during the last year Mrs Nuttall's work has been handicapped by serious ill-health, from which, however, she is fortunately rapidly recovering.

HENRY MONTGOMERY

The archeology of North Dakota and South Dakota has had special study by Dr Henry Montgomery, of the University of Toronto, who for some time past has been engaged on the products of his personal explorations in these states and their immediate vicinity. In March last Dr Montgomery read a paper on this work, illustrated by specimens and views, before the Anthropological Society of Washington; and his illustrated article on the "Remains of Prehistoric Man in the Dakotas" will appear in the next issue of the *American Anthropologist*. The structure of the aboriginal burial mounds; the occurrence of elongate mounds and of tumuli connected by long, thick, earthen walls or ridges; the occurrence of the straight, tubular pipes, and the character of the earthen vases or urns, constitute the most important of the results of Dr Montgomery's explorations in that northwestern region. These somewhat extensive excavations and explorations were undertaken several years ago, but the field notes and collections were studied only recently, and very little had been published before the present year. Dr Montgomery has also continued his studies in the archeology of the Southwestern states, which were begun during his residence in Salt Lake City (1890-94), and in 1903 he completed a brief outline work entitled "Prehistoric Man in the United States and Canada."

WILLIAM WALLACE TOOKER AND WILLIAM R. GERARD

Along linguistic lines have been the personal studies of Mr William Wallace Tooker and Mr William R. Gerard, several of whose papers, which have appeared in the *American Anthropologist*, have elicited attention not only by reason of the general interest in the origin and meaning of aboriginal Virginian names that has arisen on the eve of the three hundredth anniversary of the founding of the Vir-

ginia Colony, but because of the apparently unalterable differences between some of the conclusions reached by these two students. For several years Mr Gerard has been engaged in compiling a dictionary of all the words that have entered English from the Indian languages of the three Americas and the West Indies. This work, which has grown to be very voluminous, gives (1) the various spellings of the Indian word; (2) a definition of the object named; (3) historical quotations from various authors, giving a history of the word; (4) the etymology of the word; (5) the combinations into which the word has entered.

MAURICE FISHBERG

During the last four years Dr Fishberg, of New York City, has obtained the measurements of 1,528 native and immigrant Jews in the United States, the results of the study of which he has incorporated in the following papers:

Physical Anthropology of the Jews. I—The Cephalic Index. *American Anthropologist*, IV, p. 684-706, 1902. II—Pigmentation. *Ibid.*, V, p. 89-106, 1903.

Materials for the Physical Anthropology of the Eastern European Jews. *Annals of the New York Academy of Sciences*, XVI, pp. 155-298; published also as *Memoirs* of the American Anthropological and Ethnological Societies, vol. 1, pt. 1, 1905.

During the summer of 1905 Dr Fishberg visited North Africa and obtained measurements of 77 native Jew adults and 606 children. These results have been published in part in *Zeitschrift für Demographie und Statistik der Juden* for November, 1905, under the title "Beiträge zur physischen Anthropologie der nordafrikanischen Juden."

JOHN DYNELEY PRINCE

Professor Prince, of Columbia University, has continued his studies in Algonquian philology and folk-lore. In 1902, in collaboration with the late Charles Godfrey Leland, he published "Koloskap the Master, and other Algonquin Poems," and subsequently has published "The Differentiation between the Penobscot and the Canadian Abenaki Dialects,"¹ "The Modern Pequots and Their Lan-

¹ *American Anthropologist*, IV, p. 17-32, 1902.

guage" (in collaboration with Frank G. Speck),¹ "Glossary of the Mohegan-Pequot Language" (also in collaboration with Mr Speck),² "A Tale in the Hudson River Indian Language,"³ "Dying American Speech Echoes from Connecticut" (with Mr Speck),⁴ "A Modern Delaware Tale,"⁵ and "The Religion of the Eastern Algonquins."⁶

CARL LUMHOLTZ

Within a month after the New York meeting of the Americanists, Dr Lumholtz's *Unknown Mexico* appeared in this country in two handsomely illustrated volumes, followed in 1903 by editions issued in London and Christiania, in 1904 by a Swedish edition published in Stockholm, and in 1905 by a Spanish edition issued in New York at the expense of the Mexican Government, translated by Dr Balbino Dávalos. Dr Lumholtz's previous investigations under the auspices of the American Museum of Natural History resulted in 1904 in the publication of "Decorative Art of the Huichol Indians."⁷ At a meeting held by the Norwegian Geographical Society in May last, Dr Lumholtz was awarded the gold medal of the Society in recognition of his scientific explorations.

H. S. HALBERT

Among students of the Southern Indians during the historical period no one has been more active than Mr H. S. Halbert, of Mississippi. Mr Halbert has been engaged during the last two years in writing a history of the Choctaw Indians east of the Mississippi from the year 1540, the time of the DeSoto invasion, to 1900. In this work he has included a large body of folklore collected during twenty years' association with the Mississippi Choctaw. The creation legend of this tribe has already been published by Mr Halbert in the Publications of the Mississippi Historical Society, as have also several papers on the identification of early Indian village sites. It is expected that the Choctaw memoir will be ready for publication next year.

¹ *American Anthropologist*, v, p. 193-212, 1903.

² *Ibid.*, vi, p. 18-45, 1904.

³ *Ibid.*, vii, p. 74-84, 1905.

⁴ *Proc. American Philosophical Society*, Philadelphia, xlii, p. 346-52, 1903.

⁵ *Ibid.*, xli, p. 19-34, 1902.

⁶ *Hastings' Dictionary of Religions* (in preparation).

⁷ *Memoirs of the American Museum of Natural History*, Anthropology, vol. 11.

MARY ALICIA OWEN

This active student of Indian lore, resident at St Joseph, Mo., has devoted her energies to an endeavor to localize tales and legends heard at the council fires of the Indians in Iowa, Nebraska, and Kansas (Tama, Nemaha, Wolf River, and Big Soldier River reservations), whenever those tales and legends have to do with what was Blacksnake hills and is now St Joseph, Missouri. Blacksnake hills was neutral ground to all the tribes until the Sauk and Foxes settled on it after Tecumseh's war in the early years of the 19th century, and the section in which Miss Owen is especially interested is rich in Indian tradition. The results of some of her studies appear in an interesting volume,¹ published in 1904.

ALTON H. THOMPSON

Dr Thompson, of Topeka, Kansas, has continued his studies of the teeth of the ancient Peruvians, Mexicans, and mound builders, with reference to a system of ethnographic odontography, having in view the determination of racial differences in the form and features of these organs. His recent work has consisted of the collation of his observations on some hundreds of skulls and the classification of anatomical variations for comparison with future observations on other races. No deductions respecting the constancy of any special features that can be considered racial have as yet been drawn from the limited material classified, unless it is the excessive smallness of the molars in the Mexicans, which is so constant as to have the appearance of racial significance.

FRANCES DENSMORE

The work of Miss Densmore, of Red Wing, Minnesota, during recent years has been almost entirely in the field of primitive music, and the most important result that she has obtained has been the formulation of a working hypothesis on the development of music as a means of expression. During the Exposition at St Louis in 1904 she studied the music of the Filipinos, finding that it belongs to a period of development preceding that of the American Indians.²

¹ "Folk-lore of the Musquakie Indians of North America and Catalogue of Musquakie Beadwork and other Objects in the Collection of the Folk-Lore Society." Published for the Folk-Lore Society by David Nutt, London, 1904.

² Miss Densmore's article on this subject will appear in the *American Anthropologist*, vol. VIII, no. 4, Oct.-Dec., 1906.

During the present year Miss Densmore learned some of the songs of the Grand Medicine Society of the Ojibwa of Minnesota, among whom she made ethnological observations also, embracing some of their dances, various games, and races.

GEORGE BIRD GRINNELL.

Dr Grinnell has continued his studies among western tribes, chiefly among the Cheyenne, from whom he has collected material pertaining to their history and to their primitive customs and beliefs. In connection with this work he has procured a number of folk stories, and has acquired a collection of primitive utensils, some of which are in his possession, while others are deposited in the American Museum of Natural History. Several brief papers by Dr Grinnell have appeared during this period in the *American Anthropologist* and in the *Journal of American Folk-Lore*.

P. S. SPARKMAN

Among the younger students of aboriginal American linguistics is Mr P. S. Sparkman, of Valley Center, California, who in 1899 began to reduce to writing the language of the San Luis Rey (or Luiseño) Indians of southern California, a task that has recently been completed. A beginning of the results of Mr Sparkman's studies has been published under the title "Sketch of the Grammar of the Luiseño Language of California."¹

The above summary tells, in some instances all too briefly, of the chief progress that has been made in American anthropology since the International Congress of Americanists last convened in the New World. A full record of the progress is not possible within these brief limits of space; and indeed in some cases it has not been practicable even to summarize work that has been accomplished or to give an outline of projected plans. The anthropological results of the LOUISIANA PURCHASE EXPOSITION are of far-reaching importance and would here be reviewed were it not for the fact that the Exposition is still fresh in the minds of most Americanists and its extensive exhibits have so often and so recently been

¹ *American Anthropologist*, vol. VII, p. 656-662, 1905.

described. The benefits that have accrued to anthropology from the founding of the CARNEGIE INSTITUTION OF WASHINGTON in 1902 have been touched on in mentioning the individual work of various anthropologists; but there are other institutions, like the HISPANIC SOCIETY of New York and the ST LOUIS PUBLIC MUSEUM—the former established through the munificence of Mr Archer M. Huntington, the latter a natural outgrowth of the Louisiana Purchase Exposition—that are as yet too young to be enrolled among the working institutions, although giving promise of accomplishing great things by the time the Americanists again meet on American shores.

Long outgrown the infantile stage is the CARNEGIE MUSEUM of Pittsburg with its increasing collections and the promise of important things to be accomplished by its Department of Anthropology, with Mr C. V. Hartman at its head. The NEW YORK STATE MUSEUM, at Albany, has continued the publication of its series of Bulletins, noteworthy among which are the treatises on archeological topics by Rev. W. M. Beauchamp. Various historical societies, in addition to those above mentioned, have done excellent work, chiefly in the collection and display of local objects of antiquity and in enlightening the public as to their former use. Among these are the MISSOURI HISTORICAL SOCIETY, whose president, Dr C. A. Peterson of St Louis, has stimulated interest in archeology by reason of his personal researches in that direction. Among the individuals whose activities have been only casually mentioned, or have not been referred to at all, yet whose personal studies and observations are not less important, are:

MR A. H. BLACKISTON, who has made interesting observations on archeological remains of northwestern Mexico, some of the results of which have been published in scientific periodicals, including the *American Anthropologist*.

MR CHARLES P. BOWDITCH, of Boston, who has continued his studies of the Maya calendar system and has published several contributions to the knowledge of the subject.

MR DAVID I. BUSHNELL, of St Louis, who has made important excavations in the now celebrated McEvers mound, but whose final report on the subject has not yet been published.

MR DAVID I. BUSHNELL, JR, whose studies and photographs of

American Indian objects in European collections, and of the remains of Swiss lake-dwellings, have formed the subject of several interesting and instructive articles in recent numbers of the *American Anthropologist*.

DR GEORGE F. KUNZ, who has continued investigations of the occurrence of jade, jadeite, and other precious or semi-precious stones and their use by aboriginal peoples. The publication of the most beautiful and most expensive work ever issued in America, if not in the world—The Catalogue of the Heber R. Bishop Jade Collection—was the direct result of Mr Kunz's interest and coöperation.

THE DUKE OF LOUBAT, who, in addition to the establishment of a chair of American archeology in Columbia University, has continued the publication, in facsimile, of known Mexican codices and has thus placed in the hands of students the much needed materials for further elucidating the problems of the Mexican calendar and ceremonial systems.

MR J. D. MCGUIRE, of Washington, who has been engaged in compiling exhaustive data on the customs of smoking and the uses of tobacco among the American aborigines.

DR C. HART MERRIAM, of the Biological Survey, Washington, whose primary interest is in biological subjects but who has devoted much study to California ethnology and linguistics, and from whom we may hope to receive some of the fruits in the near future.

MR WILLIAM NELSON, of Paterson, New Jersey, a well known student and writer on the early Indian history and onomatology of his state. In 1904 Mr Nelson published *Personal Names of Indians of New Jersey, Being a list of Six Hundred and Fifty such Names, Gleaned mostly from Indian Deeds of the Seventeenth Century*.

DR JOHN B. NICHOLS, of Washington, who has devoted special attention to the numerical proportion of the sexes at birth and who expects to publish soon a memoir on this subject.

DR T. MITCHELL PRUDDEN, of New York, whose investigations of Southwestern archeology have extended our knowledge of the distribution of the aboriginal remains in the Pueblo area, and whose collections have enriched the Yale University Museum, as before mentioned.

MR HORATIO N. RUST, of South Pasadena, Cal., some of the results of whose investigations of the ethnology and archeology of southern California have been published in these pages,¹ while others will shortly appear.

PROFESSOR FREDERICK STARR, whose coöperation aided in making the anthropological display of the St Louis Exposition a noteworthy success and whose collections have formed an important addition to the treasures of the Field Museum of Natural History. Professor Starr is now engaged in research in Central Africa, the anthropological work of the University of Chicago being now in charge of Dr George A. Dorsey.

REV. ANSELM WEBER and his confrères, of St Michael Mission, Arizona, whose studies of the Navaho tribe and its language will eventually form an important contribution to American ethnology and linguistics.

DR HARRIS H. WILDER, of Smith College, Northampton, Mass., who has found the opportunity to conduct, partly in association with Miss Inez L. Whipple, studies in the epidermic ridges and the configuration upon the palmar and plantar surfaces.² Dr Wilder has also made interesting experiments in the restoration of dried human tissues,³ has conducted excavations in an aboriginal cemetery in North Hadley, Mass.,⁴ and has investigated numerous shell-mounds on the shores of Casco bay, Maine, including the islands and mainland. These excavations have produced a small collection for Smith College.

The summary would scarcely be complete without mention of the work of some of our photographers and that of a coterie of artists whose aim is the faithful portrayal of the aborigines and their customs. The result is a rapidly growing pictorial record of the Indians, the importance of which to the future student cannot be estimated.

¹ See vol. VII, 688, and vol. VIII, 28.

² *American Anthropologist*, VI, 244-293, April-June, 1904.

³ *Ibid.*, I-17, Jan.-Mar., 1904.

⁴ *Ibid.*, VII, 295-300, April-June, 1905.

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THE MONACO MEETING OF THE INTERNATIONAL CONGRESS OF ANTHROPOLOGY AND PREHIS- TORIC ARCHEOLOGY

By ADELA C. BRETON

The thirteenth session of the International Congress of Anthropology and Prehistoric Archeology was held at Monaco under the presidency of Dr E. Hamy, from April 15 to 22. Among veterans of the science present were Sir John Evans and Messrs A. Gaudry, Cartailhac, Capellini, and Pigorini, while Dr Verneau, the Abbés de Villeneuve and Breuil, Professors O. Montelius, E. Ray Lankester, S. Reinach, Rutot, Dr Capitan, Dr Arthur Evans, M. Boule, and many others contributed papers or took part in the discussions.

The first morning meeting was devoted to coliths and the Paleolithic period, but several papers which promised to be interesting were not read. M. Rutot described his own conversion from incredulity to belief in the human origin of coliths. Sir John Evans asked where are the bones which should prove the case. Abbé Breuil noted the extreme rarity of any bones in the earlier gravels.

Dr Boursion gave an account of his digging at Le Moustier,¹ where he found Chellean implements in the second layer from the top, mixed with those of the Madelaine period. As from their patina they were evidently *in situ*, he thinks they are a later return to the *coups de poing*, and that they did not (as had been suggested) fall from the plateau above. M. S. Reinach said that the Chellean implement once discovered (and it was "one of the great discoveries of the world") continued always, and other speakers agreed that they are found in later sites, having either been picked up and re-used, or the shape continued by subsequent makers.

A visit was paid that afternoon to the caves of Baoussé-Roussé, a mile east from Menton, in the limestone cliff, about 25 feet above

¹ See *L'Homme Préhistorique*, July, 1905. The mountains rise steeply above the caves, which face what was formerly the only coast road from France to Italy.

the present sea level. The Abbé de Villeneuve and M. Boule described the Grotte du Prince on the spot. No human bones have yet been found in this cave, although there are about sixteen *foyers*, or hearths, with implements. The lower ones are as follows :

The Grotte du Prince.—c (pl. xxviii b¹). Fauna of a cold climate, but archeologically Mousterian, as in d : *Canis lupus*, *Hyæna spelæa*, *Cervus tarandus*, *Cervus (Dama) somonensis*, *Cervus elaphus*, *Bison priscus*, *Bos primigenius*, *Capra ibex*, *Ursus spelæus*.

d. In this series silex begins to replace the quartzite, grit, etc., used for implements in the lowest beds, and the hot period fauna ends. *Hippopotamus amphibius*, *Rhinoceros merckii*, *Elephas antiquus*, *Equus caballus*, *Sus scrofa*. A shell, *Cassis rufa* (Linn.), a species from the Indian ocean.

e. The implements correspond with those of Tasmania. They resemble the Mousterian, but the flakes chipped on both sides, especially characteristic of Moustier, are absent, and the implements seem more advanced and developed.

Barma Grande, the next cave, contains three skeletons found there.² Then comes the *Grotte du Cavillon* (pl. xxviii c), where M. Rivière found the skeleton known as "L'Homme de Menton," now in the museum in the Jardin des Plantes at Paris, preserved just as it was discovered.

The *Grotte des Enfants* (pl. xxviii c), a little west from this, has given most interesting results, having been excavated, like the Grotte du Prince, at the expense of the Prince of Monaco, with the greatest precaution.

B. The skeleton of a woman strewn over with shells ; a rounded piece of natural iron near the right shoulder.

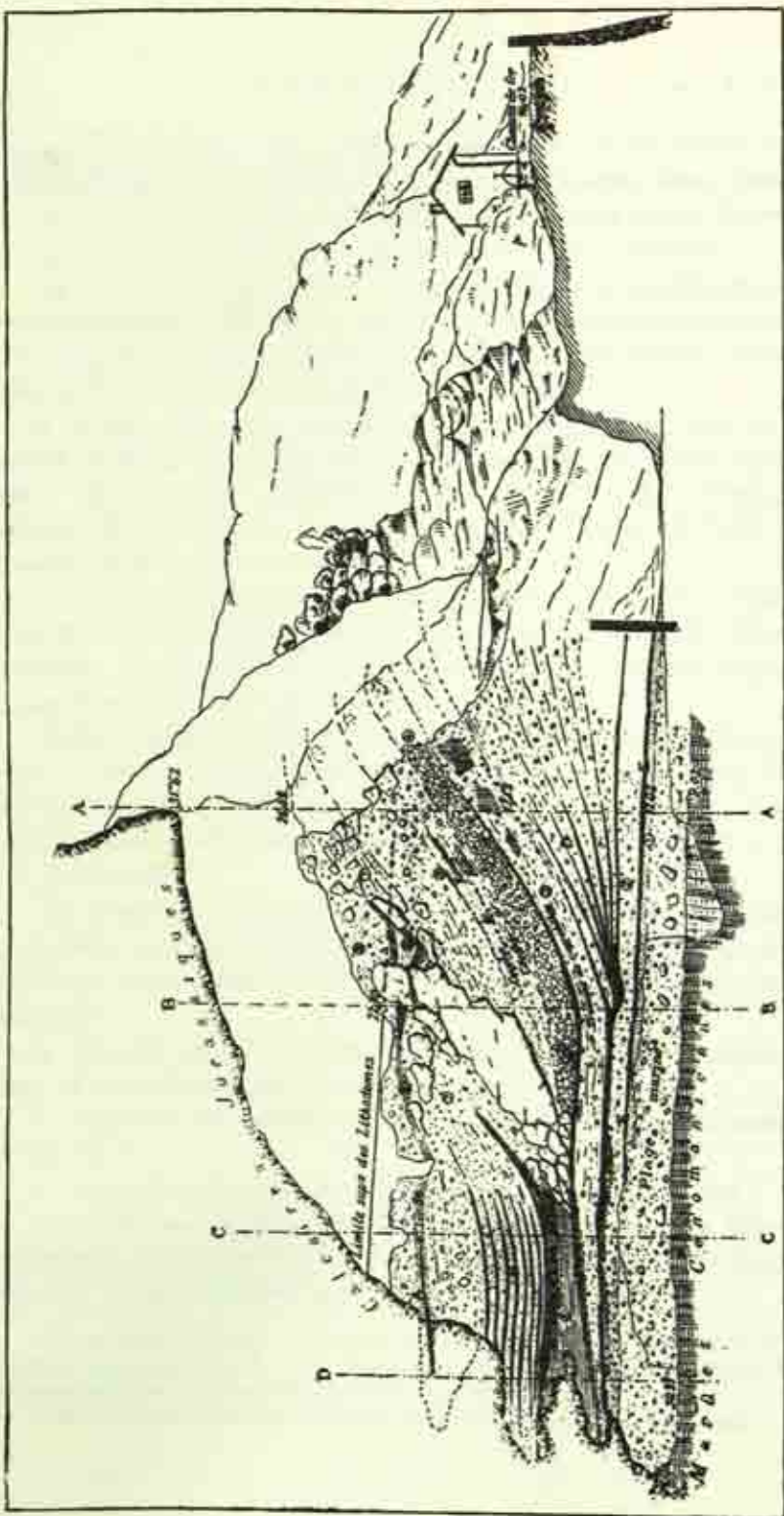
c. The *foyer des enfants*, with children's skeletons discovered by M. Rivière.

d. Contains very small and delicate implements, and flakes.

e. Flakes and implements with notched sides ; simple flakes with points skilfully obtained and often much retouched, very characteristic of the Paleolithic period.

¹The accompanying plan and sections are reproduced from the drawings of M. Tschirret, under the direction of M. Boule and L'Abbé de Villeneuve, published in the guide leaflet issued by the Congress for the use of the excursionists.

²This cave was excavated by M. Jullien about 1884, but without sufficient care.



LONGITUDINAL SECTION OF THE GROTTÉ DU PRINCE. (HEIGHTS GIVEN IN METERS.)

F. At this period wood must have been used for implements. There are few bone objects. *Pointes à cran* of silex, mistakenly thought similar to those of Laugerie Haute, which are of the end of the Solutrean period.

G. Hammer-stones, pierced shells, flattish rubbing pebbles, a bone implement, and scrapers and gravers characteristic of the reindeer period.

H. Interment: male skeleton lying on back, at full length, with hands on breast; small shells (*Nassa naritea*) around the head; canine teeth of deer pierced for suspension, and flint implements strewn around the body. Cro-Magnon type.

I. Skeletons of an old woman and a young man, lying huddled together, on their sides. The man with four rows of the *Nassa* shells around the head; flint chips around. Negroid type.

K. Bone points of the post-Mousterian but pre-Solutrean period.

L. Small whitish flakes.

About seven meters deep from B to L.

The following day's session was occupied chiefly by discussions on these caves.

Dr Verneau read a paper on the peculiar negroid type which he proposes to call "L'Homme de Grimaldi," the caves being in the commune of Grimaldi. The head is negroid, very prognathous, with wide face. The projection of the heel is enormous, and the long forearms also are negroid, but the pelvis is European and the dentition like the Australian. He had found the same type in some ancient burials in Italy, and even saw two survivors (not dark in color) in a remote mountain village near Turin. The Neolithic negroid type found in Brittany appears to be similar. Dr Verneau considers that these cave-burials were undoubted burials in cavities made on purpose, and undoubtedly Quaternary.

The Anthropological Museum in the old town of Monaco contains these skeletons and a collection of the contents of the caves, labeled and admirably arranged under the superintendence of M. Cartailhac and Abbé de Villeneuve, the director. M. Boule and Dr Verneau are bringing out full reports of the excavations for the Prince of Monaco, but they will probably be distributed privately and not sold.

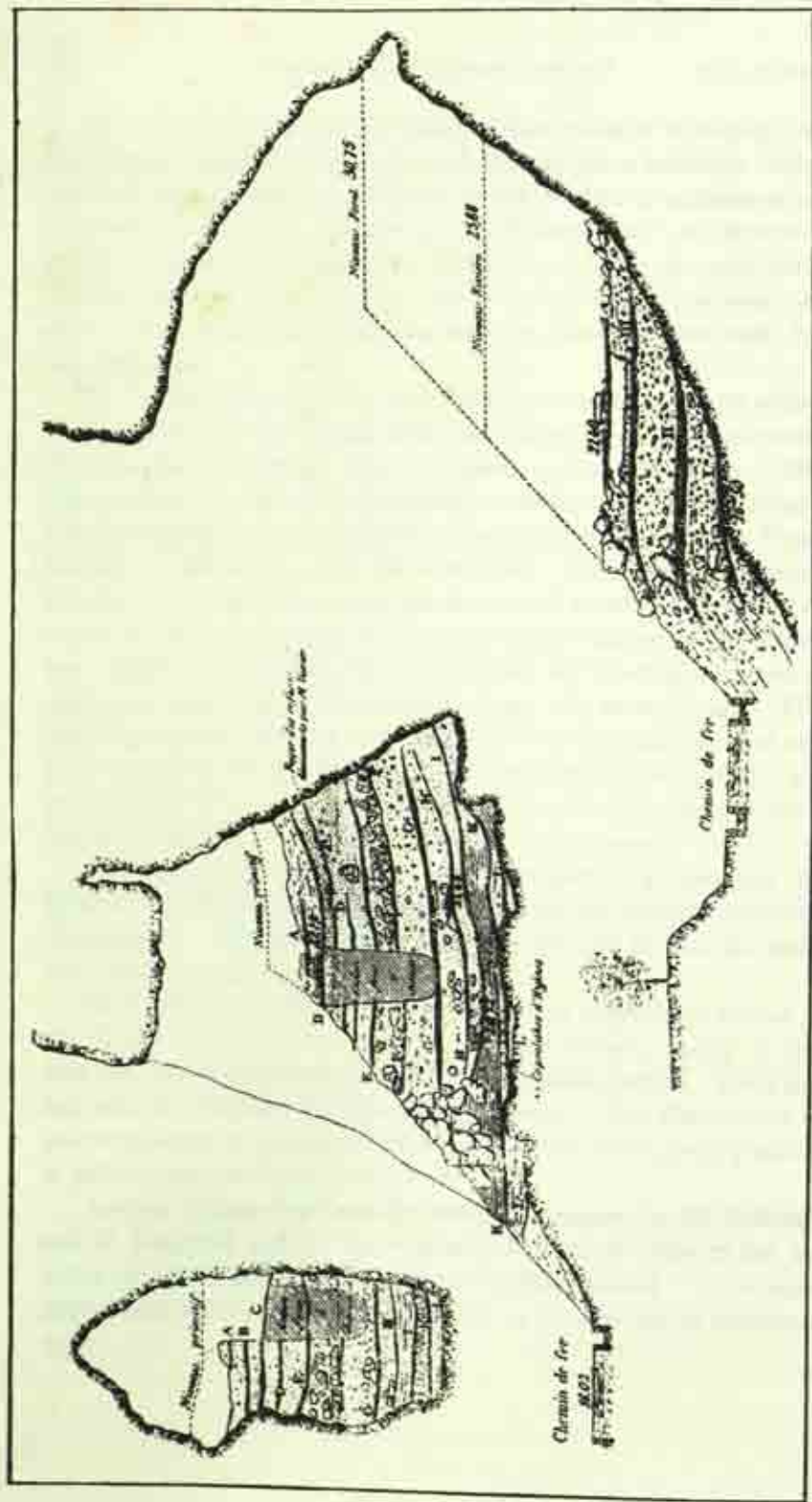
M. A. Gaudry, speaking of the possible cradle of humanity and the present tendency to consider it Australia, drew attention to the arrest of development in the fauna of the southern hemisphere as evidenced in Australia, Patagonia, and Madagascar. He therefore thinks it improbable that man should have been an exception. "Some one has said, *l'Homme est arrivé de l'Australie avec son chien*. It is more likely that he went to Australia and took his dog with him."

Dr Capitan gave a vividly descriptive lecture, with lantern slides, on the Prehistoric Caves with Decorated Sides, of which 15 are now known—ten in France, four in Spain, and one in Italy. His illustrations (from the carefully drawn copies by the Abbé Breuil and from photographs) were chiefly from the caves of Combarelles, Font-de-Gaume, Marsoulas, and Pair-non-Pair. The mammoth, bison, reindeer, cave-lion, bear, and horse are all represented in these wonderful incised drawings and must have been known to the artists who reproduced them so well. The caves are winding passages in calcareous rock, that of Combarelles being 283 meters long. The drawings usually begin at some distance from the entrance and are most numerous at the far end. As few carnivorous animals are among them, it is supposed that they were made by a race of hunters to invoke the deity to send them plenty of game.

The Bronze age in Sweden was the subject of a discourse by Professor O. Montelius, with slides illustrating the different methods of interment. He distinguishes three periods, and in each the male and female burials differ in detail.

M. Dechelette spoke on the distribution of deposits or caches of the Bronze age in France, of which 620 are known, mainly on the west side near the Atlantic coast and the English channel. There are few near the Pyrenees and the Mediterranean. The distribution of gold ornaments in France follows that of bronze, and a great quantity of gold objects has been found in Brittany.

Ancient African Sites was the subject of papers by M. Debruge and M. Flamand, and the latter noted the contact between the interior of Libya and Egypt in the Neolithic period. Mousterian implements have been found *in situ*, but as yet not any of Solutrean type.



GROTTE DES ENFANTS

FRONT AND SIDE SECTIONS. AN ANCIENT LIMERICK
HALL BEEN DUG THROUGH THE LAYERS

GROTTE DU CAVILLON
SECTION—SIDE VIEW

Dr Montané, of Cuba, said that primitive man there, as shown in the cave burials, was of a negroid type similar to that of Grimaldi.

Dr Allen Sturge, of 29 Boulevard de Dubouchage, Nice, invited the members to visit his magnificent collection of stone implements, and distributed an interesting descriptive catalogue of the more important objects.

The social side of the Congress included an evening reception by the Prince of Monaco in his historic palace, and an opera and a concert at the Casino of Monte Carlo.

There was an excursion to Grasse, under the guidance of M. P. Goby, to see several dolmens and fortified sites in that neighborhood.

The next meeting of the Congress will be held at Dublin in 1909.

BATH, ENGLAND.

THE STORY OF THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON¹

By DANIEL S. LAMB

One of the duties of the President of this Society is to deliver, at the first meeting in February, an address on some anthropological subject. Inasmuch as a history of the Society has never been written and as this is the twenty-seventh year of its existence, I have prepared a brief account of its activities during that period to serve as my presidential address.

Omitting the National Institute, which was founded in 1841 and passed out of existence twenty years later, there was only one scientific society in Washington, so far as I am aware, prior to 1871. This was the Medical Society, incorporated in 1819 and therefore approaching its centennial. The Philosophical Society was established in 1871, and the Anthropological Society in 1879. In 1880 the Biological Society was founded; the Chemical and Entomological Societies in 1884; the National Geographic Society in 1888, the Geological Society in 1893, the Columbia Historical Society in 1894, the Society of Foresters in 1900, the Botanical Society in 1901, and the Washington Society of the Archæological Institute of America in 1902, making twelve scientific societies, all of which are now affiliated with the Washington Academy of Sciences. It is not difficult to understand how the successive establishment of other societies, the functions of some of which are more or less related to anthropology, drew away a portion of the membership of the Anthropological Society of Washington.

The following advertisement appeared in the newspapers of Washington, February 7, 1879:

"Many persons interested in American Archæology have expressed a desire for an organization in this city to promote study and diffuse knowledge upon the subject. All willing to join an archæological associ-

¹ Presidential address, somewhat abbreviated, delivered May 9, 1905.

ation are requested to attend a meeting at the Smithsonian Institution on Monday evening the 10th inst. at 7½ o'clock for a conference upon the subject and the formation of such a Society."

This announcement was signed by Dr J. M. Toner, Prof. Otis T. Mason, and Col. Garrick Mallery, U. S. A.

Twenty-five persons, responding to the call, met in the regent's room in the South Tower of the Smithsonian building on the date named. Those who attended were Dr A. Wellington Adams, then living in Washington, but soon afterward removed to St Louis; Mr S. Yorke Atlee; Prof. Spencer F. Baird, secretary of the Smithsonian Institution; Mr Otis Bigelow, a banker; Mr George H. Boehmer, of the Smithsonian International Exchanges; Mr E. A. Burdick, of the Pension Office; Mr Frank Hamilton Cushing, of the Bureau of Ethnology; Dr Wills de Hass, temporarily connected with the same bureau; Dr Robert Fletcher, of the Library of the Surgeon General's Office; Prof. G. Brown Goode, assistant secretary of the Smithsonian Institution in charge of the National Museum; Mr John C. Lang, an antiquarian; Col. Garrick Mallery, of the Bureau of Ethnology; Prof. Otis T. Mason, then of Columbian College, afterward and now curator in the National Museum; Dr James E. Morgan, a well-known physician; Mr P. W. Norris, of the Bureau of Ethnology; W. W. Reisinger, then Lieutenant, afterward Commander, U. S. N.; Dr Elmer E. Reynolds, of the Pension Bureau; Mr William J. Rhees, of the Smithsonian Institution; Dr Miles Rock, a civil engineer; Mr Lenox W. Simpson; Dr J. E. Snodgrass, well-known in Washington; Dr J. M. Toner, a celebrated physician, historian, and bibliophile; Mr Edwin P. Upham, of the Smithsonian Institution; Prof. Lester F. Ward, of the Geological Survey; and Mr Joseph M. Wilson.

Dr Toner presided at the meeting and Professor Mason acted as secretary. Messrs Toner, De Hass, Mason, and Mallery were appointed a committee to draft a constitution and to report at a meeting to be conducted at the same place, February 17th. The meeting was held, the committee reported, and the constitution was in part adopted. There was some discussion as to a name for the society; some favored the title "The Archeological and Ethnolog-

ical Society," but the name "The Anthropological Society of Washington" was finally adopted, the fact that the Archæological Institute of America was then in process of organization in Boston lending weight to the selection of our present designation.

The object of the Society, as stated in the constitution, was "to encourage the study of the natural history of man, especially with reference to America," and included Archeology, Somatology, Ethnology and Philology. Afterward Archeology and Ethnology were dropped, and Sociology, Psychology, and Technology were substituted. Still later the sections were rearranged as: *a*, Somatology; *b*, Psychology; *c*, Esthetology; *d*, Technology; *e*, Sociology; *f*, Philology; *g*, Sophiology.

In 1882, and again in 1899, some radical changes were made in the constitution, and minor modifications during the interim. The duties of the officers were much the same as they are now, except in the case of the curator, who had charge of all the anthropological material contributed to the Society, and not deposited in either the National Museum or the Army Medical Museum; he preserved all books, pamphlets, photographs, and clippings (keeping a record of them) and kept a card index of anthropologic data to which members were expected to contribute. Later the card index was discontinued. The constitution made it the duty of all members to seek to increase and perfect the materials for anthropological study in the national collections at Washington; after having been shown to the Society and a record made of them, they were to be deposited as stated — the crania and other somatic specimens in the Army Medical Museum, the remaining objects in the National Museum. A few years ago, however, the crania and other specimens sent by the Society to the Medical Museum, except such as exhibited disease or injury, were transferred to the National Museum.

It was provided that all business of the Society should be conducted by a council, afterward called a board of managers. In this way the Society's meetings, except the annual meetings when officers were elected, have been devoted entirely to anthropologic work, and precious time has not been wasted in discussing business matters.

Theoretically the vice-presidents were then, as now, the officers on whom mainly depended the work of the Society. They presided over their respective sections and represented them in the council, and papers pertaining to the subject of a particular section were referred to the council by the vice-president representing that section. Through him also the section was required to keep the Society informed as to the progress of research in its particular field, to make special investigations when required by the council, to announce interesting discoveries, to collect specimens, manuscripts, publications, newspaper clippings, etc., and in every way to foster its own branch of the work.

Later, the constitution was so amended as to require each vice-president to deliver annually an address on some subject pertaining to his special field. At present he is required to keep the Society informed of the progress of research in his section, to make special investigations when requested by the board of managers, and to foster in every way the work of the Society; and he is made responsible for the program of one meeting each year, to be devoted to the particular subject intrusted to his section. While the rule is an excellent one in theory, in practice it has not always been strictly adhered to.

At the initial gathering there was much discussion as to the frequency of meetings; it was finally decided to meet twice a month. The season began October 1st and ended July 1st, but this arrangement was not a success, and later the period was changed to include from November to May inclusive. The meetings were originally held on the first and third Tuesdays of the month; in recent years these were changed to every alternate Tuesday, beginning with the first Tuesday in November. The first meeting in February was set apart for the address of the president of the previous year; at first, he was limited in subject to the work of the Society during his incumbency, but afterward his choice of subjects was unrestricted.

At the third preliminary meeting, February 24, 1879, the constitution was adopted as a whole and the following officers were elected: *President*, Major J. W. Powell; *Vice-presidents*, Dr J. M. Toner, Dr George A. Otis, U. S. A., Col. Garrick Mallery, and Mr Wills De Hass; *Corresponding Secretary*, Prof. O. T. Mason; *Re-*

Recording Secretary, Dr E. R. Reynolds; *Treasurer*, Mr John C. Lang; *Curator*, Mr Frank H. Cushing; *Members of the Council at Large*, Mr A. S. Gatschet, Lieut. W. W. Reisinger, U. S. N., Mr G. K. Gilbert, Dr Charles A. White, Dr Thomas Antisell, and Mr J. M. Wilson.

The office of President has been occupied as follows: Major Powell served nine terms in all, 1879-1883, 1884-1887, and in 1895; Col. Garrick Mallery in 1883; Dr Robert Fletcher, three terms, 1888 to 1890; Dr J. C. Welling, two terms, 1891-1892; Prof. O. T. Mason, two terms, 1893-1894; Prof. Lester F. Ward, 1896; Dr Frank Baker, 1897; Dr W J McGee, three terms, 1898-1900; Prof. W. H. Holmes, two terms, 1901-1902; Miss Alice C. Fletcher, 1903; and the writer in 1904 and for the first session of 1905.

I have said that the tenth of February is the date from which the Society counts its anniversaries, this being the date of its initial meeting in 1879. The Directory of the Washington Academy of Sciences and its Affiliated Societies gives February 17th as the date of organization, which is true only in so far that the constitution was partially adopted on that day.

The Directory states also that there were 17 original members, but as a matter of fact there is no record of any membership before February 24, 1879, for which date I find recorded the names of 28 persons. Apparently each of these 28 was as much a founder as any other of the number. At least 16 of the original members are dead, namely, Adams, Antisell, Bigelow, Cushing, De Hass, Goode, Lang, Mallery, Morgan, Norris, Otis, Powell, Reisinger, Rock, Shoemaker, and Toner. Nine are known to survive: Burdick, Robert Fletcher, Gatschet, Gilbert, Gore, Mason, Reynolds, Ward, and White.

The Society having been duly organized, the first regular meeting was held March 4, 1879. The first paper was read by Frank H. Cushing on "Relic Hunting," and Professor Mason was the first to pay dues. The meetings at first were held, by courtesy of Secretary Baird, in the Regent's room of the Smithsonian Institution, but on February 1, 1881, they were transferred to the lower lecture hall of the Medical department of Columbian University, or, as the de-

partment was generally called, the National Medical College, at 1325 H st., N. W. Here the Society continued to meet until April 3, 1883, when by invitation of the Surgeon General, U. S. A., it met in the library of the Army Medical Museum, then in the old Ford's Theatre building on Tenth street. The Society again changed its place of meeting December 2, 1884, to the lecture hall of Columbian University, at 15th and H streets, N. W. Since April 5, 1887, it has met in the assembly room of the Cosmos Club, the old Dolly Madison house, corner of Madison place and H street. Occasionally, when large audiences were expected, meetings have been conducted elsewhere.

On March 2, 1880, Major Powell delivered his first annual address as president, on the subject "Evolution in Language." The membership of the Society then numbered 63. On February 3, 1880, an important step was taken by the Society in appointing a committee to report the most expedient method of exploring and mapping the shell-heaps and other aboriginal remains along the Chesapeake and its tributaries.

In Major Powell's second annual address, delivered February 1, 1881, "On Limitations to the Use of Some Anthropologic Data," he gave a résumé of the work of the Society for the preceding two years and concluded by stating that, in view of the worthlessness of a vast body of anthropological material, "anthropology needs trained devotees with philosophic methods and keen observation to study every tribe and nation of the globe almost *de novo*; and from materials thus collected a science might be established." This and the preceding annual address form part of the *Abstract of Transactions of the Anthropological Society of Washington, D. C., with the Annual Address of the President, for the First Year, ending January 20, 1880, and for the Second Year, ending January 18, 1881. Prepared by J. W. Powell.* Including the constitution and list of members this pamphlet contains 150 pages. It was printed in 1881 at the joint expense of Major Powell and the Society, and was reprinted by the Smithsonian Institution in 1883 as part of its *Miscellaneous Collections* (publication no. 502).

About this time the council appointed a committee on communications, which has been a feature of the Society's organization to this day.

The *Transactions of the Anthropological Society of Washington for the First Three Years of its Organization* (142 pages, 8°) was published in 1882, with the coöperation of the Smithsonian Institution. In addition to the *Transactions*, the pamphlet contains a list of officers and members and the amended constitution, but it lacks the informal discussions and notes on the presentation of specimens that add so much to the interest of the minutes. There are occasional discrepancies between the written minutes and the published account; in these cases I have accepted the latter as more likely to be correct.

The third annual address by President Powell, delivered February 7, 1882, bears the title "Outlines of Sociology;" this constituted also one of the Saturday lectures delivered at the National Museum in April, 1882, under the auspices of the Anthropological and Biological Societies of Washington.

On May 16th of this year Major Powell laid before the Society a project for forming an Academy of Sciences, as prepared by committees of the Anthropological, Biological and Philosophical societies. Action in the matter was successively postponed until November 21, 1891, when it was announced that the three societies had not been able to agree on a plan and that the joint committee had adjourned *sine die*.

On November 6, 1883, Major Powell delivered his long-deferred annual address on "Human Evolution." Volume II of the *Transactions*, covering the period from February 1, 1882, to May 15, 1883, and including this address, was printed by the society in 1883 with the coöperation of the Smithsonian Institution, which issued it as a part of its *Miscellaneous Collections* (publication no. 544; xiii + 211 pages, 8°).

On October 11, 1884, the Society was honored by the presence of the well-known English anthropologist, Prof. Edward B. Tylor, of Oxford University. The meeting, which was largely attended, was held at Columbian University, and Professor Tylor's theme was, "How the Problems of American Anthropology Present Themselves to the English Mind."

On February 3, 1885, President Powell presented his annual address on the subject "From Savagery to Barbarism." The members of the Philosophical and Biological societies were invited to

attend. With the coöperation of the Smithsonian Institution the Society published, in 1885, Volume III of its *Transactions*, covering the period from November 6, 1883, to May 12, 1885. This volume (xxii + 204 pages, 8°) was issued in 1886 as a part of the *Miscellaneous Collections* of the Smithsonian Institution (publication no. 630).

On March 16, 1886, President Powell delivered his annual address, entitled "From Barbarism to Civilization." It appears that no presidential address was delivered in 1887.

On February 15, 1887, the Society was honored with the presence of another celebrated English anthropologist, Dr Alfred Russel Wallace. The meeting was held at Columbian University, and the subject of Dr Wallace's address was "Social Economy versus Political Economy." The members of the Philosophical, Biological, Chemical and Women's Anthropological societies were invited to attend.

Colonel Mallery submitted to the Society April 10, 1887, a plan of incorporation, which was adopted; and on December 13 the Society became incorporated, as "The Anthropological Society of Washington," for the term of 1,000 years. As only eighteen of these years have passed, the society is yet quite in its infancy. The incorporators were Messrs Powell, Fletcher, Mason, Mallery, Seely, Gore, Henshaw, Hoffman, Thomas Wilson, J. C. Pilling, Holmes, and Ward. Half this number (Powell, Mallery, Seely, Hoffman, Wilson, and Pilling) have died.

The special object of the incorporation was to make possible the publication of a periodical magazine and other works relating to anthropology, and the disposal of such publications by sale or otherwise. The incorporation was followed in a few weeks by the appearance of the first number of *The American Anthropologist*, dated January, 1888, and containing 96 pages, 8°. The honor of first place therein was given to Dr James C. Welling, president of Columbian University, and later president of the Society, whose paper bears the title, "The Law of Malthus." The magazine was published under the auspices of the Society, and was printed by Judd & Detweiler of Washington. The first editorial committee consisted of Messrs. Gore, Hampson, Henshaw, Mason, Matthews,

Proudfit, and Seely. Hampson was given charge of communications and correspondence, but died a few months afterward, being succeeded by Henshaw. For some years a brief record of the transactions of the Society was published in this magazine.

Early in 1888 a series of evening lectures was begun under the auspices of the Society. The first was by Prof. William Libbey, of Princeton University, on the subject of "Southeastern Alaska and its People." I do not know of any other lectures in this course. President Powell delivered his presidential address on March 6, in the lecture hall of Columbian University, on the subject "Competition as a Factor in Human Evolution."

About the middle of April of this year there was a meeting of a joint committee of the Anthropological, Biological, Chemical, National Geographic, and Philosophical societies, which recommended that a Joint Commission, to consist of three representatives from each of the five societies, be formed to consider questions of common interest, "that the function of the commission should be advisory, except that it might execute instructions on general subjects and in special cases from two or more of the participating societies, provided that no society should be bound by the commission to any action to which it (the society) had not given instruction."

Dr Robert Fletcher does not appear to have presented a presidential address in 1889 or 1890, but on April 21, 1891, he delivered an address on "The New School of Criminal Anthropology." On May 3, 1892, Dr Welling delivered his address on "The Law of Torture, A Study in the Evolution of Law."

A committee on Place Names in the District of Columbia made a report on December 13, 1892, which gave rise to an interesting discussion, after which the report was adopted. Mr W J McGee read an appropriate paper on "The Principles of Nomenclature." The next three meetings were devoted to a symposium on the question, "Is Simplified Spelling Feasible?" Among those who participated were Prof. F. A. Marsh and Prof. W. D. Owen, of Lafayette College; Dr A. R. Spofford, of the Library of Congress; Dr William T. Harris, Commissioner of Education; Assistant Secretary Willits, of the Department of Agriculture; Dr Alexander Mel-

ville Bell; President Gallaudet of Gallaudet College for the Deaf; Dr John M. Gregory, of the Civil Service Commission; Prof. Lester F. Ward, Mr E. T. Peters, Col. Weston Flint, and Major Powell. The discussion was closed by Dr Spofford. The meetings aroused intense interest and form an important feature of the work of the Society; they were followed by a large accession to the membership.

On February 14, 1893, at Columbian University, Mr Frank H. Cushing addressed the Society on "the Mytho-sociologic Organization of the Cult Societies of Zuñi," in which he told of his own initiation into the Priesthood of the Bow. The lecture was illustrated with lantern slides and its popularity was attested by an audience of 379 persons. Some time previous to Mr Cushing's initiation, Dr H. C. Yarrow told me that in order to procure admission to this priesthood it would be necessary for Cushing to show at least one scalp, and asked me if I would obtain one. I understand that the scalp had its appropriate part in the ceremony of initiation.

Dr Welling delivered his presidential address, May 16, 1893, on "The Last Town Election in Pompeii." On successive Saturday afternoons during this spring a series of eight lectures was given at the National Museum by members of the Anthropological Society and under its auspices, the average attendance being 342. The honor of the first lecture was accorded to the writer, following whom were Dr D. K. Shute, Prof. Lester F. Ward, Major Powell, Professor Mason, Dr D. G. Brinton of Philadelphia, Mr McGee, and Dr Thomas Wilson. Mr McGee's lecture on "The Earth the Home of Man" and Prof. Ward's on "The Status of the Mind Problem" were printed by the Society as *Special Papers*, 1 and 2.

In 1893, a member, Dr Robert H. Lamborn, of New York, offered the Society the sum of \$250 to be awarded as prizes "for the clearest statements of the elements that go to make up the most useful citizen of the United States, regardless of occupation." The Society arranged to grant two prizes, and competition was open to every one; a limit of 3,000 words was made, and the papers were to be in the hands of the secretary by November 1, but the time was afterward extended to March 1, 1894. The commissioners of award were Dr D. G. Brinton as an anthropologist; President Gilman, of Johns Hopkins University, as an educator; Chief Justice

Fuller, of the United States Supreme Court, as a jurist; Vice-president Stevenson as a statesman; and Dr Lamborn. More than fifty essays were received; the successful competitors were Prof. Simon Newcomb, first prize, and Mr W J McGee, second prize. The announcement of the award was made and the papers were read May 20, 1894.

November 27, 1893, a joint meeting of the Anthropological Society of Washington and the Woman's Anthropological Society of America was held at Columbian University in honor of Mrs Zelia Nuttall, and although the weather was inclement there was a large attendance. Professor Mason presided, and Mrs Nuttall was introduced by Miss Alice C. Fletcher, president of the Woman's society. Mrs Nuttall's subject was "The Mexican Calendar System." Brief addresses were also made by Mrs Caroline Dall, Dr Anita Newcomb McGee, and Mr Frank H. Cushing. A reception followed the meeting.

January 30, 1894, Professor Mason delivered his presidential address, the subject being "Technogeography." During the spring, from February 11 to May 26, another series of Saturday lectures was given at the National Museum under the auspices of the Anthropological and Geological societies. Of these lectures four were on somatologic topics, by Surgeon General Sternberg, Dr Frank Baker, Mr F. A. Lucas, and Mr W. Woodville Rockhill; four were devoted to general geology, by Dr George H. Williams, Dr George F. Becker, Mr Bailey Willis, and Mr Marius R. Campbell; then followed the field meeting of the National Geographic Society, and the course was concluded with five lectures on dynamic anthropology by Holmes, Cushing, Mallery, Dr Cyrus Adler, and Mr John W. Hoyt.

On February 4, 1895, Professor Mason read a paper on "Similarities in Culture," which, apparently, was his presidential address. In 1895 and 1896 the Joint Commission of the Scientific Societies, representing the Anthropological, Chemical, Entomological, Geological, National Geographic, and Philosophical societies, printed in folder form an advance monthly program of the meetings of the individual societies. The first issue was for April, 1895; the last was for May, 1896.

A joint meeting of the Anthropological Society of Washington and the Woman's Anthropological Society was held April 9, 1895, the program consisting of a symposium in Folklore, in which Dr Washington Matthews, Miss Elizabeth Bryant Johnston, and Col. Weston Flint took part. On the 23d another joint meeting was held, in which Mrs M. P. Seaman and Mr Frank H. Cushing were the speakers. A third joint meeting, continued from the other two, was held May 14, when Dr W. J. Hoffman, Mercy S. Sinsabaugh, and Ellen P. Cunningham presented papers. At these meetings Miss Fletcher presided.

A joint meeting of all the scientific societies of Washington was held January 14, 1896, at Builders' Exchange hall, to honor the memory of Dana, Pasteur, Helmholtz, and Huxley. Addresses were made by Major Powell, Surgeon General Sternberg, Prof. T. C. Mendenhall, and Dr Theodore Gill. On February 4 Major Powell delivered his presidential address under the auspices of the Joint Commission, at Builders' Exchange hall. His subject was "The Seven Illusions of Science."

In January of this year *The American Anthropologist* was changed from a quarterly to a monthly magazine. Under the auspices of the Joint Commission another series of Saturday lectures at the National Museum was given, from April 4 to May 23, those taking part being T. S. Palmer, L. O. Howard, F. A. Lucas, J. W. Powell, O. T. Mason, Gardiner G. Hubbard, J. Walter Fewkes, and W J McGee. The subjects covered a wide range.

On February 2, 1897, Prof. Lester F. Ward delivered his presidential address at Builders' Exchange hall, under the auspices of the Joint Commission, on the subject "Religion in Science."

In the latter part of 1897, apparently at the initiative of the National Geographic Society, the subject of the Joint Commission was much discussed. A committee representing several of the societies met December 13th, when it was resolved that the "Joint Commission" be changed to the "Washington Academy of Sciences," which should assume independent function and have power to add to its members. The Academy was accordingly formed, and on February 24, 1898, Major Powell was nominated by the Anthropological Society as one of the vice-presidents of the new organiza-

tion. The first meeting of the Academy was held February 16; Prof. J. R. Eastman was elected president, Prof. G. K. Gilbert, secretary, and Mr Bernard R. Green, treasurer. The final meeting of the Joint Commission was held March 22.

On March 19, Dr Frank Baker delivered his presidential address on "Primitive Man," under the auspices of the Washington Academy of Sciences.

At the winter meeting of Section H of the American Association for the Advancement of Science a committee was appointed to consider the question of an anthropological journal; and a committee, consisting of President McGee and Dr Frank Baker (chairman of the editorial board of *The American Anthropologist*), was appointed by the Anthropological Society of Washington to coöperate with the committee of Section H. It had long been felt that the needs of anthropology in America had outgrown the media of publication, and that with its limited financial resources the Anthropological Society could not afford to increase the size of its magazine, or make it national in scope. There was consequently much discussion at the meetings of the board of managers, during the autumn and winter of 1898, respecting the advisability of transferring the publication of the journal to private hands, and before the close of the year plans were perfected to this end. It was suggested by some that the name of the journal be changed; but, largely through the efforts of Major Powell, the Board agreed that the old name should be preserved, and as the support of the Society was necessary to success, the name *American Anthropologist*—*New Series* was finally adopted. In order that a legal contract could be made, two prominent anthropologists, one of them a member of the Anthropological Society, became constructive owners, and Messrs G. P. Putnam's Sons, of New York, were selected as publishers. Toward the end of the year a prospectus was prepared by the founding committee and steps were taken at once to carry the project into effect. As the last number of the monthly issue, namely, that for December, 1898 (volume XI, no. 12) went to press, the first number of the new quarterly, that for January–March, 1899, was being printed. The editorial board of the new journal consisted of Baker, Boas, Brinton, Dawson of Canada, Dorsey, Holmes,

Hodge, Powell, and Putnam. The Anthropological Society agreed to subscribe for a sufficient number of copies, at a reduced rate, to supply its members, but assumed no further financial obligations connected with the journal.

On November 25, 1898, the Society invited the members of the Woman's Anthropological Society of America to become members of this Society, and on January 3, 1899, forty-nine members of the Woman's Society were elected. President McGee delivered his annual address, February 28, 1899, on "The Trend of Human Progress," under the auspices of the Washington Academy of Sciences, at Columbian University. On April 26, there was a joint meeting of the Anthropological Society and the Medical Society in the rooms of the latter. The subject was "The Spanish-American War: Gunshot Wounds." Those who participated were Drs George M. Kober, L. A. La Garde, W. H. Borden, and E. L. Munson.

On February 13, 1900, Mr McGee delivered his second presidential address, on "The Cardinal Principles of Science," under the auspices of the Academy, at Columbian University; and on February 26, 1901, his third presidential address was given under the same auspices, and at the same place, on "Man's Place in Nature." In March of the latter year a letter was received from the Société d'Anthropologie de Paris, suggesting an interchange of communications. The proposal was accepted, and on December 17, a paper that had been received from M. Paul Sébillot, on "The Worship of Stones in France," was read. Mr McGee was authorized to send a paper on behalf of the Washington Society, which paper was later published by the Société d'Anthropologie under the title "Germe d'industrie de la pierre en Amérique." In March, 1901, the board directed that a quarterly abstract of the proceedings of the Society should be sent to the *American Anthropologist*.

On February 26, 1902, Mr W. H. Holmes delivered his presidential address at Columbian University under the auspices of the Academy, his subject being, "Sketch of the Origin, Development, and Probable Destiny of the Races of Men." Mr Holmes' second presidential address, on "A Genetic View of Men and Culture," was delivered February 3, 1903, at the same place. During 1903

there was much informal discussion in regard to the preservation of antiquities in the United States, and the matter came formally before the Society December 1, when a committee was appointed to consider the subject. This committee reported March 8, 1904, recommending the support of a bill then before Congress.

Miss Fletcher, who served as President for 1903-04, was unable, because of illness, to present her annual address.

During the period of my own presidency, which began January 12, 1904, the only matter of special interest besides that of the preservation of antiquities, just mentioned, was a change in the by-laws, by which the annual meeting for the presentation of reports and the election of officers was made the last meeting in May instead of the first meeting in January. The object of this amendment was to enable the incoming president to take advantage of the summer interval in planning the work of the Society for the succeeding session.

Some time after the founding of the Society, apparently in 1881, the constitution was written in a book and the signatures of some members are appended; but some did not sign at all, and only six members signed after 1884.

In reviewing the records of the Society I find that 479 persons have joined as active members, 137 have been elected as corresponding members, and 73 as honorary members. Some active members later became corresponding members by reason of change of residence, or of occupation, or both; and a few who at first were corresponding or honorary members afterward became active members. Of the active members 16 per cent were physicians; 8 per cent were women; 6 per cent were connected with the Geological Survey; 5 per cent were associated with the Smithsonian Institution and National Museum; 5 per cent with the Bureau of American Ethnology; 5 per cent were army officers; 3 per cent, lawyers; 2.5 per cent, clergymen; 2.5 per cent, naval officers; 2 per cent were employes of the Pension Office, and 2 per cent were connected with the Department of Agriculture.

During the twenty-six years of its existence 730 papers have been read, of which at least 70 per cent have been published; 74 persons who were not members of the Society have presented papers.

Professor Mason appears to have read the largest number of papers presented by one individual; Mr Holmes comes next, and Major Powell third. Most members have read only a few papers, or none; they have doubtless been good listeners, however, and in that way have lent encouragement. Moreover, many took part in discussions or casually presented some matter of interest of which little or no record appears.

Of the members who have died, the following may be named as having contributed especially to the life and work of the Society: Dr James C. Welling, who was president for two years, Col. Garrick Mallery, Col. Franklin A. Seely, Rev. James O. Dorsey, James C. Pilling, Capt. John G. Bourke, U. S. A., Dr G. Browne Goode, Assistant Secretary of the Smithsonian Institution, Dr Walter J. Hoffman, Mr Frank H. Cushing, Col. Frank F. Hilder, Dr Thomas Wilson, Major J. W. Powell, who served as president for many terms, and Dr Washington Matthews, U. S. A. As obituary notices of all these have appeared in the *American Anthropologist* it is unnecessary here to give further details.

WASHINGTON, D.C.

BOOK REVIEWS

Archaeological Researches in Costa Rica. By C. V. HARTMAN. Publication of the Royal Ethnological Museum in Stockholm. Stockholm: 1901. 4°, 196 pp., maps, 87 plates.

This elaborate and carefully prepared volume is based partly on the collections from Costa Rica now in the Royal Ethnological Museum of Stockholm made by Åke Sjörgren, Esq., at whose expense Mr Hartman's explorations were conducted and the results published.

Mr Hartman divides his exploration into two periods, to each of which he devotes a section of the book: *A*, Researches on the East Coast, and *B*, Researches on the Highland plains in the Province of Cartago. These researches occupied the space of a year during 1896 and 1897, the sites being situated on or near the line of the railroad.

The most notable site examined in the coast region was that at Mercedes, where the group of earthworks marking an ancient center of religious activity was subjected to an investigation that yielded a number of important results. Two of the great stone images found lying on the slopes of the principal mound were proved to have stood upon the platform on top of the mound where in all probability they were objects of worship. These figures, which are of severe and dignified expression, are among the few examples of nude sculpture in Central America. The treatment of the nude is very creditably performed. The sculpture is characterized by strength rather than by refinement, and though lacking in grace these statues exhibit a great deal of expression and succeed admirably in conveying the impression of power. The site at Mercedes must have been an important center for the cultivation and exercise of the sculptor's art, since the contents of the workshop excavated by Dr Hartman bear witness at once to the variety of subjects treated and the activity with which the work was prosecuted. While the eastern coast is remarkable for the quantity and excellence of its sculpture, the art of pottery making was not so well developed as on the highlands.

The graves, of which a number were opened at Mercedes and other sites on the eastern coast, were built underground, the walls being constructed of small stones carefully laid together without cutting, and the top and bottom of flat limestone slabs. Scarcely a trace of bone was

found in these graves, but all contained pottery which in its general character resembles the pottery of Nicaragua. The pottery of the highlands shows less of foreign characters, but presents on the contrary quite distinctive types. Especially characteristic is the pottery with painted decorations, which presents an interesting study in conventionalized animal forms as applied to pottery decoration. The ruling motive in this body of ornament is an animal form which passes through a series of transformations until a conventional pattern is produced, which is used both entire and in parts and forms a large proportion of the decoration on this pottery.

The relationship between the arts of the Guētares and those of other Central American peoples is completely in harmony with what is known of their history and affinities. These arts are distinctly Chapanecan and closely allied with those of the region about Lake Managua on the one hand and those in the vicinity of the Chiriqui lagoon on the other. While many of the elements which are common to these three culture centers are found also in the Uloa valley, evidences of contact between the culture of the Guētares and that of the more cultivated Mayas are almost totally lacking. The most striking feature of the Guētare culture is beyond doubt the sculpture in stone, which excels that of all other Central American people except the Mayas, and the bold attempt at rendering the nude is especially worthy of note. The stone cists of the highland district described by Mr Hartman, who opened several hundreds, are quite identical with tombs found in Missouri and Tennessee — constructed of natural slabs of limestone set on edge, with other slabs for top and bottom. The small size of most of these is regarded by Mr Hartman as evidence that they served for secondary burials, a theory which is quite in keeping with what is known of the burial customs of the Guētares, as is also the opinion that the raised terraces in which the tombs are found served as the foundations of dwellings within which the dead were buried. Within recent times the natives of this region lived two or three families together in houses of poles and thatch, and buried their dead beneath the floors.

G. B. GORDON.

Anfänge der Kunst im Urwald. Indianer-Handzeichnungen auf seinen Reisen in Brasilien gesammelt. VON DR THEODOR KOCH-GRÜNBERG. Berlin: Ernest Wasmuth, 1905. 8°, xv, 70, viii pp., plates, figures, map.

The author presents a collection of native drawings of the Indian tribes of the upper Rio Negro, and the Rio Yapurá. During a stay of

some years in Brazil Dr Koch-Grünberg has cultivated friendly relations with the native artists and has elicited their curiosity while they have commanded his admiration.

The plates reproduce in the main drawings of wild beasts, birds, and fishes; plants and smaller animals are rare. Men, women, and children engaged in hunting, fishing, and the pursuits of daily life are represented, while there is a notable absence of scenes of combat. Plans of houses, and maps, astronomical charts, and conventional or conventionalized decoration in great variety are also given. Peculiarities of primitive drawing are the representation in the same picture of the same object in more than one plane, the omission, addition, or separation of parts of the body, and a quality of transparency in solid objects.

The drawings are possibly, the author concludes, an outgrowth of the desire for representation and communication rather than for esthetic satisfaction. The recognition of animal, bird, or fish, and of sex depends on a quite naïve but natural drawing of the significant feature or features.

The paper and printing of the book are a subject of congratulation; this work is the forerunner of others pertaining to the same tribes.

C. PEABODY.

Kinderzeichnungen bis zum 14. Lebensjahr. Mit Parallelen aus der Urgeschichte, Kunstgeschichte und Völkerkunde. Von Dr SIEGFRIED LEVINSTEIN. Mit einem Anhang von Dr. Phil. LL. D. KARL LAMPRECHT. Leipzig: R. Voigtländer, 1905. 8°, 3, 119, xv pp., 85 pl., 18 tables.

In comparison with the foregoing, this highly detailed study of drawings of primitive children of civilization is exceedingly interesting. There are seventy-three plates, and almost every form of childish endeavor in art is represented. The human form, animals and plants, scenes and illustrations of tales and ideas are attempted in turn.

Tables are presented graphically showing the progress in detail with advancing age, the variation between the sexes, the struggle for perspective, the proportion of choice of important features in illustration, etc.

The superfluous features, the "mixed profile," transparency, incomplete or absent outlines, are all strikingly suggestive of true primitive art. Plates of reproductions of the latter (*e. g.*, 5, 6, 7, 8) are inserted; they are drawn from both ethnological and archeological sources. Chapter VII is devoted to Eskimo child-drawings.

More investigation of this kind is very much desired.

C. PEABODY.

SOME NEW BOOKS

ANNALES du Musée du Congo. Ethnographie et Anthropologie. Série III. Notes analytiques sur les collections ethnographiques du Musée du Congo. Tome I., fasc. II. La Religion. Bruxelles: Spineux et C^{ie}, 1906. 4°, pp. 145-316, pls. XXII-LXII.

BATRES, LEOPOLDO. La Lápida Arqueológica de Tapatlaxco-Orizaba. Mexico: Tipografia de Fidencio Soria, 1905. Sm. 4°, 19 pp., 16 pl.

BATRES, LEOPOLDO. Teotihuacán ó la Ciudad Sagrada de los Tolteca. Por Leopoldo Batres, Inspector General y Conservador de los Monumentos Arqueológicos de la República Mexicana. Mexico, D.F.: Imprenta de Hull, 1906. Sm. 4°, 27 p., 4 fig.

BATRES, LEOPOLDO. Teotihuacan. Mexico, D.F.: Imprenta de Fidencio S. Soria, 1906. Sm. 4°, 30 p., 44 pl.; and Appendix, 10 pl. with descriptions.

BOAS, FRANZ. The Measurement of Variable Quantities. (Archives of Philosophy, Psychology and Scientific Method, No. 5. Columbia University Contributions to Philosophy and Psychology, vol. XIV, No. 2.) New York: The Science Press, June 1906. 8°, 2 ll., 52 p.

Contains the introduction to a course on the statistical treatment of biological and psychological measurements, which the author has given for ten years at Columbia University. "The form selected for the demonstration of the principles of measurement of variables was chosen on account of the limited mathematical preparation of students who have devoted themselves to the study of anthropology, biology, and psychology, which made it necessary to avoid, so far as feasible, all application of the calculus."

BOWDITCH, CHARLES P. Mayan Nomenclature. Privately printed. Cambridge: The University Press, 1906. 8°, 11 p.

BOYLE, DAVID. Annual Archaeological Report, 1905. Being part of Appendix to the Report of the Minister of Education, Ontario. Toronto: Printed and Published by L. K. Cameron, 1906. 8°, 249 p.

CANTARES en idioma Mexicano. Reproduccion facsimiliaria del manuscrito original existente en la Biblioteca Nacional que se imprime por acuerdo del Sr. Gral. Don Manuel Gonzalez Cosio, Secretario de Fomento, en el taller de fototipia del mismo ministerio, bajo la direccion del Dr. Antonio Peñafiel. Mexico: Oficina Tipografica de la Secretaria de Fomento, 1904 [1906]. 4°, 27 pp. text, 86 ll. facsimile.

FRAZER, J. G. Adonis. Attis. Osiris. Studies in the History of Oriental Religion. London: Macmillan and Co., Ltd., 1906. 8°, xvi, 339 p.

HEWITT, EDGAR L. Antiquities of the Jemez Plateau, New Mexico. Smithsonian Institution, Bureau of American Ethnology, Bulletin 32.

Washington: Government Printing Office, 1906. 8°, 54 p., 1 l., 17 pl. and maps.

INSTITUTS SOLVAY. Travaux de l'Institut de Sociologie. Notes et Mémoires. Bruxelles and Leipzig: Misch & Thron, éditeurs. Sm. 4°. *Contents:*

Fasc. 1. Note sur des formules d'introduction à l'énergétique physio- et psychosociologique, par E. Solvay, 1906. (126 pp.)

Fasc. 2. Esquisse d'une sociologie, par E. Waxweiler, 1906. (306 pp.)

Fasc. 3. Les origines naturelles de la propriété: Essai de sociologie comparée, par R. Petrucci, 1905. (xvii, 246 pp.)

Fasc. 4. Sur quelques erreurs de méthode dans l'étude de l'homme primitif: Notes critiques, par L. Wodon, 1906. (36 pp.)

Fasc. 5. L'Aryen et l'anthroposociologie: Etude critique, par le Dr E. Houzé, 1906. (117 pp.)

Fasc. 6. Mesure des capacités intellectuelle et énergétique, par Ch. Henry, avec une remarque additionnelle (Sur l'interprétation sociologique de la distribution des salaires) par E. Waxweiler, 1906. (75 pp., 1 l.)

Fasc. 7. Origine polyphylétique, homotypie et non-comparabilité des sociétés animales, par R. Petrucci, 1906. (viii, 126 pp.)

INTERNATIONALER AMERIKANISTEN-KONGRESS. Vierzehnte Tagung. Stuttgart, 1904. Berlin, Stuttgart, Leipzig: Verlag von W. Kohlhammer, 1906. 8°, 2 pts., lxxxvii, 703 pp., 4 pls.; suppl., 87 pp., 6 pls., chart.

KÖNIGLICHE MUSEEN ZU BERLIN. Verzeichnis der in der Formerei der Königl. Museen Käuflichen Gipsabgüsse. (Prähistorische, Ethnologische und Anthropologische Gegenstände.) Berlin: Herausgegeben von der General-Verwaltung, 1906. 8°, v, 52 pp.

ROUILLARD, EUGÈNE. Noms géographiques de la Province de Québec et des Provinces maritimes empruntés aux langues sauvages. Avec carte indiquant les territoires occupés autrefois par les races aborigènes. Etymologie, traduction et orthographe. Québec: Éd. Marcotte, 82, rue Saint-Pierre, 1906. 8°, 110 pp., map.

ROY, PIERRE-GEORGES. Les noms géographiques de la Province de Québec. Lévis: 1906. 8°, 514 pp.

THURSTON, EDGAR. Ethnographic Notes in Southern India. Madras: Printed by the Superintendent, Government Press, 1906. 8°, viii, 580 pp., 40 pls.

WILL, G. F., and SPINDEN, H. J. The Mandans. A Study of their Culture, Archaeology and Language. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University. Cambridge, Mass.: Published by the Museum, August, 1906. 8°, pp. 79-219, 4 maps, 15 pls., 16 figures.

PERIODICAL LITERATURE

CONDUCTED BY DR ALEXANDER F. CHAMBERLAIN

[NOTE. — Authors, especially those whose articles appear in journals and other serials not entirely devoted to anthropology, will greatly aid this department of the *American Anthropologist* by sending directly to Dr A. F. Chamberlain, Clark University, Worcester, Massachusetts, U. S. A., reprints or copies of such studies as they may desire to have noticed in these pages. — EDITOR.]

GENERAL

- A. (G.) Elisée Reclus. (Ymer, Stockholm, 1905, xxv, 325-329, portr.) Biographical sketch, with appreciation of scientific labors.
- Andrée (R.) Mythologischer Zusammenhang zwischen der Alten und Neuen Welt. (Globus, Brnischwg., 1906, lxxxix, 89-90.) Brief résumé and critique of Ehrenreich's *Die Mythen und Legenden der südamerikanischen Urölker* (Berlin, 106 p., 1905).
- B. (Z.) A földrajz halottai 1905-ben. (Földr. Közlem., Buda-Pest, 1905, xxxiii, 407-418.) Treats of geographical necrology for 1905. Brief sketches of A. Bastian, W. T. Blanford, V. B. Dejter, Comte P. de Brazza, J. Edkins, E. A. Gregory, P. M. Lessar, E. Reclus, E. Richter, F. von Richthofen, Tippoo Tip.
- Balfour (H.) President's address. (J. Anthr. Inst., Lond., 1905, xxxv, 13-19.) Discusses activity of the society, publications of members, anthropology in universities, physical deterioration, etc. Advocates the adoption in anthropology of "a binominal, or better still, a trinominal system of nomenclature, combined with a well-organized system of registration."
- Bethe (E.) Mythos, Sage, Märchen. (Hess. Bl. f. Volksk., Lpzg., 1905, iv, 97-142.) Discusses the nature and characteristics of myth, *sage* and *märchen*. Dr B. considers a *märchen* to be "the common property of all of the many peoples of Asia, Europe, and at least the North of Africa," — an international being that takes on nationality, so that, whether it be Finn or German, the folk-soul lies in it. The *märchen*

has eternal youth. The *sage* is bound (not free like the *märchen*) to places, customs, times; it tells not of "a king," but of "King Gunther," not of "a castle," but of "Troy castle." It has not the charmingly indefinite "once upon a time." The *myth* can arise from any of the several equally justified roots of religion, cult of the dead, ensoulment of nature, etc., perhaps even fetishism. *Märchen*, *sage*, and *myth* have all had to do one with another and the web of their interweaving is often most beautiful.

Broomall (H. L.) The significance of errors in speech. (Proc. Del. Co. Inst. Sci., Media, Pa., 1906, i, no. 2, 30-45.) According to the author, the evolution of language is "imitation modified by increasing significance and decreasing effort." From this "errors" arise (many examples are given). Every correct form of language was or will be an error and every error was once correct or represents forms that will sometime be correct. The error is only an error in time. It is the sign of life. By it the living language is distinguished from the dead. English abundantly exemplifies this.

Conybeare (F. C.) Die jungfräuliche Kirche und die jungfräuliche Mutter. Eine Studie über den Ursprung des Mariendienstes. (Arch. f. Religsw., I. pag., 1905, viii, 373-389; 1906, ix, 73-86.) Treats of the development of the idea (in a mythoplastic age) of the church personified as a virgin, a virgin bride, the first-born of God, the oldest of all things, *domina mater ecclesia*, the spiritual mother of Christ, the bride of God, the bride of Christ, etc. The early hymnology uses these expressions of the church and not of Mary — Mariolatry comes later.

- DeHaan** (J.) Over den dood. (Natuurk. Tijdschr. v. Nederl.-Indië, Weltevreden, 1905, dl. LXV, 61-73.) Discusses views of various philosophers and men of science concerning death, particularly the recent view of Bolk, who distinguishes sexual and somatic death among the higher animals. The natural death of the human being is sex-death.
- Dieterich** (A.) Hermann Usener. (Arch. f. Religsw., Lpzg., 1905, VIII, i-xi, portr.) Appreciative sketch of life and scientific activities (d. Oct. 21, 1905). Among Usener's chief works were: *Kallons* (1867), *Italische Mythen* (1875), *Epicurea* (1887), *Götternamen* (1896), *Sinfultage* (1899), *Dreikeit* (1903). Usener was a great philologist and a pioneer in the science of religion.
- Drews** (P.) Das Abendmahl und die Dämonen. (Hess. Bl. f. Volksk., Lpzg., 1905, IV, 176-205.) Treats of the folklore of the Lord's Supper, particularly in regard to its protective power against demons. Nowhere else was the collision of Christian-divine and heathen-demoniacal power so marked as in the Lord's Supper,—fear of profanation of the elements, etc., and the incoming of mortal sin, accidents of handling and partaking, participation of the ungodly and the unworthy, cup and water, etc. Belief in the demon onset has passed largely, but the customs and rules remain.
- Förteckning** öfver vetenskapliga skrifter af professor Hjalmar Stolpe. (Ymer, Stockholm, 1905, XXV, 445-446.) List of scientific writings (37 items, 1872-1904) of the late H. Stolpe.
- Fürst** (K. M.) Om åldersanatomi. (Ibid., 76-89.) General discussion of the growth of the body and its organs according to age—stature, head measurements, internal organs, skeleton, blood, etc. The divisions of life recognized are: childhood (1-15 or 16 years), youth (15-20 or 25), adult age (20-25-45-50), age of regression (50-65-70), senility (70 and over).
- Geddes** (J.) Simpler spelling. (Education, Boston, 1906, XXVI, repr. p. 1-9.) Argues for a "universal alphabet that will be used." With a universal alphabet spelling reform will come of itself. Reforms in other lands are noted.
- Goldstein** (F.) Die Menschenopfer im Lichte der Politik und der Staatswissenschaft. (Globus, Brunschwg., 1906, LXXXIX, 37-41.) Discusses the sacrifice of human beings past and present (ancient Mexican priestly offerings, sacrifices of war-prisoners, cruel punishment of domestic and foreign enemies, criminals, etc., infanticide, sacrifice of widows, slaves, etc.). So far as politics are concerned, according to G. the object of human sacrifice was the punishment in the most cruel way possible of enemies and the spreading abroad of fear, in order to make easier the ruling of the many. Infanticide and slave sacrifices probably served private economic ends.
- Hall** (G. S.) The undeveloped races in contact with civilization. (Bull. Wash. Univ. Assoc., St. Louis, 1906, IV, 145-150.) Abstract of lecture. Argues against man as exterminator, the exhaustion and depletion of indigenous populations (e. g. in Congo) by the whites and the making over of others (American Indian) into "a cheap imitation of the white man," the deepening of the color line against the negro, etc.
- Ingenieros** (J.) D'une classification des criminels fondée sur la psychopathologie. (Rev. Scient., Paris, 1906, V^e s., V, 648-651.) Outlines a psychopathological classification of criminals. The divisions are: 1. Moral anomalies (dithimic); 2. intellectual anomalies (diagnostic); 3. volitional anomalies (diboullic). Each of these has three subdivisions: Congenital, acquired, transitory. Besides these three groups there is another including composite types.
- Knapp** (C.) Elisée Reclus. (Bull. Soc. Neuchât. de Géographie, Neuchât., 1905, XVI, 310-316.) Biographical sketch and appreciation of chief works of great Belgian geographer and ethnographer.
- Le Double** (M.) L'évolution des os de la face. (Rev. Scientif., Paris, 1906, V^e s., 548-556, 584-590.) Treats of the evolution of the bones of the face in the animal series and in man, variations and abnormalities of growth, monstrosities, etc. Dr L. attributes the slow and progressive reductions in the dimensions of the maxillaries to the struggle between the brain and the jaw, effect of milder manners (choice of food, cooking, etc.) on the size and volume of the teeth; also to hereditary selection.
- Lehmann** (E.) Teufels Grossmutter. (Arch. f. Religsw., Lpzg., 1905, VIII, 411-430.) Treats of "the devil's grandmother" in literature, *märchen*, myths, etc., particularly Teutonic (with analogues elsewhere).

Lombroso (C.) A propos des caractères dégénératifs du crime et du génie. (Rev. Scient., Paris, 1906, 4^e s., v, 795.) Note in reply to M. Le Double's remarks in a previous number. Lombroso maintains that physical malformations "are only external signs, not corollaries." Genius, with crime and madness, is a branch of the tree of epilepsy—a fertile, even wonderful, product of epileptic degeneration.

v. Luschan (F.) Ueber ein rachitisches Schimpanseeskelett. (Z. f. Ethn., Berlin, 1906, XXXVIII, 115-120, 4 pl.) Describes, with measurements, the skeleton of a male chimpanzee ca. 15 years old (long in the Dresden Zoological Garden), the skull and pelvis of which are particularly rachitic. This skeleton is compared with that of a sound adult animal of the same size.

Mantegazza (P.) Il preteso pregiudizio delle razze. (A. p. l'Antrop., Firenze, 1905, XXXV, 303-310.) Critique of Finot's recent volume *Le préjugés des races* (inspired "by the fatal and mad word equality"). M. does not agree with Finot's conclusions that "the psychology of peoples demonstrates their mental unity," and "the virtues and vices of a race are but the effects of historical circumstances or of the influence of environment."

— Darwin dopo cinquant' anni. (Ibid., 311-322.) Sums up the results of Darwin's views and influence—the "temple of evolution" has not remained quite as it was built. "Evolution" is too English, too utilitarian, and "natural selection" has been "overworked."

Parsons (Elsie C.) The religious dedication of women. (Amer. J. Sociol., Chicago, 1906, XI, 585-622.) Discusses this topic from the crudest form (wives of the gods among the natives of Guinea) to the modern nun and Protestant church-goer. Author holds that in the phenomena involved "we discover one of the many impressive series of social factors which have contributed so richly to the development of human personality." When woman was a chattel, male ownership kept her chaste, and "now religion seems to safeguard the products of a social means that is outgrown."

Parsons (F. G.) and Box (C. R.) The relation of the cranial sutures to age. (J. Anthr. Inst., Lond., 1905, XXXV, 30-38.) Gives results of examination of 82 skulls, mostly of lower and mid-

dle class English people (from St Thomas Hospital) with respect to ectocranial and entocranial sutures—ages of subjects 17-85. Authors agree with Picozzo as to earlier obliteration in males. The lambdoid closes later than the coronal and sagittal as a rule. Signs of a metopic suture occurred in 6 skulls. Absence of internal obliteration indicates an age below 30, while after 60 all the internal sutures have disappeared. Ectocranial sutures are usually open under 30 and obliteration commences below the Stephanion.

Pradel (F.) Der Schatten im Volksglauben. (Mitt. d. Schles. Ges. f. Volksk., Breslau, 1904, H. XII, 1-36.) Interesting discussion of the shadow in folklore,—shadow as soul, under-world of shadows, shadowlessness of spirits and elves, shadow as essential part of man, fear of loss of shadow under the equator (Amboyna, Old Calabar, etc.), correlation of power and strength with shadow, shadow as protective "demon," form of shadow, loss of shadow (Peter Schlemihl cycle), shadow as "haunt," magic connected with shadow (stepping on, urinating on), shadow in oaths and legal lore, defiling of water through shadow, medicinal virtue and evils of tree-shadows, etc., pregnancy caused by shadow of leaf (Tahiti), proverbs and sayings about the shadow, riddles, etc. Widespread is the idea that man's shadow is his soul.

— Kopflöse Menschen und Tiere in Mythe und Sage. (Ibid., 37-42.) Gives numerous references to the many and widespread myths and stories concerning headless men (often with head under arm) and animals. Horses in particular appear headless in association with the headless wild huntsmen. Dr P. suggests as sources of such myths not decapitation (the spirit of the beheaded was regarded as headless), but ancient burial customs (separation of head from body before cremation, inhumation, etc.). The idea was then carried over to animals.

Reid (C. A.) The biological foundations of sociology. (Amer. J. Sociol., Chicago, 1906, XI, 532-544.) Dr R. argues that "races evolve only when placed under influences which, because injurious to the individual, weed out the weak and the unfit, and leave the race to the strong and fit." This accounts for tall and robust negroes, fine Chinese race (city-life for ages). Human beings develop under three stimuli: nutrition, use, injury.

Races can be improved only by breeding favorably-varying individuals. There is no reason why we should not rival, and even surpass the Greeks. Improved environment and selective breeding will do it.

Retzius (G.) Hjalmar Stolpe. (Ymer, Stockholm, 1905, xxv, 5-16, 3 figs.) Appreciative sketch of life, scientific activities, etc., of H. Stolpe, best known by his *Development of primitive ornament (1890-1891)*, and *Studies in American ornament (1896)*.

Schlaginhaufen (O.) Das Hautleistensystem der Primatenplanta unter Mitberücksichtigung der Palma. (Morphol. Jahrb., l. pag., 1904, xxxiii, 577-671; 1905, xxxiv, 1-125, 194 figs.) In this valuable and detailed monograph, based on the investigations of the soles of 330 Simia and Prosimia and of 365 human soles (European 278, West African negro 51, Papuan 24, Japanese, Chinese, East Indian 12), with examination of all the previous literature on the subject (bibl. 109 titles, pages 608-612), Dr S. presents a thorough-going study of the cutaneous crests and furrows of the sole (the palm also is considered) among the primates and several human races—macroscopic and microscopic aspects, embryology, physiology, topography (in detail with statistics), etc. In certain peculiarities man and the Catarrhine monkeys belong together (e. g., the triradius, t13, never occurring typically in the Platyrrhines). The gorilla, the orang, and the chimpanzee resemble man in diverse ways (which is really nearest cannot yet be determined). In man race-differences occur. The Maya-Indians (Wilder) are more primitive than the West African Negroes (S.). The Papuans of northern New Guinea depart most from the original type. The most primitive elements are the "insulæ primariæ," from which the crests, etc., develop.

Simmel (G.) The sociology of secrecy and of secret societies. (Amer. J. Sociol., Chicago, 1906, xi, 441-498.) Discusses friendship, marriage, secrecy as a sociological technique (e. g., in commerce), reciprocal confidence (protective character), reticence on an objective basis (secret societies of the Moluccas, Gallic druids, etc.), correlation of secrecy and individualistic separateness, gradual initiation, ritual, etc. The secret element in societies is a primary

sociological fact, the secret society is a secondary structure. Secret associations have always had a significant rôle in political aristocracies. The secret society seems dangerous because it is secret.

Singer (H.) Der Stand der geographischen Erforschung der deutschen Schutzgebiete. (Globus, Brnschw., 1906, lxxxix, 77-82.) Résumés recent geographical literature concerning the German colonies and protectorates in various parts of the world.

Starbird (R. S.) The ethnological in Matthew Arnold. (Bull. Wash. Univ. Assoc., St. Louis, 1906, iv, 112-121.) Arnold's use of ethnological terms seems a mere rhetorical flourish, but he used this device "because he felt instinctively a fundamental relation between the products of a literary man and the life of that man, between the literary output of an age and some characteristic movement of that age, and between literature as a whole and life as a whole." He hits off easily the distinctive marks of a race. One idea pervades his work—let us perfect our race.

Swift (E. J.) The school and the individual. (Ibid., 122-141.) Protests against "the dominant sin of the school-master, the attempt to make children homogeneous." Cites examples of children who resented direction and coercion.

Tjeenk Willink (H. D.) Mammalia voorkomende in Nederlandsch-Indie. (Natuurk. Tijdsch. v. Nederl.-Indie, Weltevreden, 1905, dl. LXV, 154-345.) This valuable monograph on the mammalia of the Dutch East Indies includes notes on the anthropomorphic apes, the Hylobates, Cercopithecus, etc. The local names are given. The *maias* (as the Dayaks called the *orang*) constructs a "nest" in the trees in which it sleeps at night—Dr Buttikofer found so many of these as to lead him to believe that the creature sometimes built a new one every night. An index of names is added.

Vram (U. G.) Metodo per determinare l'inclinazione dell'orbita. (A. d. Soc. Rom. di Antrop., 1906, xii, 195-196.) Briefly describes an easy method of finding the horizontal inclination of the orbit.

Warren (S. H.) On the origin of "eolithic" flints by natural causes, especially by the foundering of drifts. (J. Anthr. Inst., Lond., 1905, xxxv, 337-364, 1 pl.) Treats of classes of "eoliths" (battered surfaces, flaked surfaces, chipped edges) and the possible

means of their formation: human agency; water-abrasion by wave-action; water-abrasion by streams, rivers and floods; soil-abrasion; the drag of ice; wear and tear on the surface of the ground. The pressure-chipped "eoliths" occur abundantly in hill-drifts of paleolithic age, but are rare in the contemporary valley gravels. W. does not accept the theory of eolithic man, believing these forms to be the result of natural action. Discussion by others, pages 359-363.

Weidemann (A.) Alphabet. (Arch. f. Religsw., Lpzg., 1906, viii, 552-554.) Notes on the "magic" of the 24 letters, the "mystery" of the alphabet, etc., in Greek and early Christian thought. In the early Coptic period 24 personalities developed out of the alphabet.

Wittrock (K. J. H.) De olika slagen af folkmängdskartor. (Ymer, Stockholm, 1905, xxv, 428-444.) Treats of the different types of maps of density of population.

EUROPE

Abercromby (J.) The chronology of prehistoric glass beads and associated ceramic types in Britain. (J. Anthr. Inst., Lond., 1905, xxxv, 256-265, 5 pls.) Enumerates 37 finds of prehistoric glass beads (particularly ribbed, notched beads of opaque blue vitreous paste) in connection with pottery, etc., in British barrows. The long ribbed and globular vitreous beads (found with cinerary urns with overhanging rims) were imported into Britain ca. 900 (or 800)-600 B. C., during part of the Hallstatt period of central Europe.

Bates (W. N.) A signed amphora of Meno. (Amer. J. Archaeol., Norwood, Mass., 1905, ix, 170-181, 2 pl., 6 figs.) Describes a red-figured amphora bearing the signature of the new painter Meno, an Athenian, not otherwise known, ca. 510 B. C., and trained in the black-figured school. He was possibly the grandfather of Meno, the accuser of Phidias. On one side are Leto, Apollo, and Artemis, and on the other side of the vase a warrior leading horses. The vase is now in the museum of the University of Pennsylvania—it came from some town in Etruria. Meno has some resemblances to Andocides in style, etc.

Baur (P.) Tityros. (Ibid., 157-165, 1 pl., 1 fig.) Describes a terra-cotta figure (local Theban ware, middle of fifth century, B. C.), now in the Boston Mu-

seum of Fine Arts, "representing one of those mythical combinations of animal and man so peculiar to Greek religious thought"—an ithyphallic goat-man, a demon closely related to the Pan and Satyr type. Only five specimens of the type of this statuette are known (2 from Thebes, 2 from Locris, 1 from Rhodes). An appropriate appellation is Tityros, for the goat-man demon had phallic and other kindred associations.

Beddoe (J.) Colour and race. (J. Anthr. Inst., Lond., 1905, xxxv, 219-250, 2 pl., 1 fig.) Discusses color as a race-mark, drawbacks to its use (change with age, fugitiveness after death, operation of various forms of selection, personal equation), systems of classification, relative values of hair and iris color, effects of geographical situation, migration, etc. The maps of Dr B. show the distribution of color and race in central Europe and in the British Isles (tables of pigmentation). Dr B. regrets "the diminution of the old blond lympho-sanguine stock, which has hitherto served England well in many ways, but is apparently doomed to give way to a darker and more mobile type, largely the offspring of the proletariat, and more adapted to the atmosphere of great cities." The brunet type is not gaining in Scandinavia, but the growth of towns may induce a change. In southern Europe the blond seems to persist only by constant reinforcement from the north. There are reasons for believing that man in Europe had originally red hair.

Biehringer (F.) Die Sage von Hero und Leander. (Globus, Brnshwrg., lxxxix, 1906, 94-97.) Discusses the Hero-Leander legend and its distribution (see also Jelinek's *Die Sage von Hero und Leander in der Dichtung*, Berlin, 1890) in Europe (particularly in Teutonic countries). The legend may be of Indian origin, though this is by no means certain.

Blaaschke (E.) Weihnachtsherligeromt ei der Schwenzer Schmiede vor 30 Jahren. (Mitt. d. Schles. Ges. f. Volksk., Breslau, 1904, II. xii, 103-107.) Describes Christmas customs of 30 years ago in Schwenz, district of Glatz.

Bore (E.) Tidsbilder från det forna Gellivare. (Svenska Landsmål, Stockholm, 1904, 27-41.) Notes on folk-life in Gellivare, a parish in the extreme north of Sweden: Fairs in 1860-1870, famine among the Lapps, ecclesiastical festival

in 1890, the catechizing tours of the cure of Gellivare in Karungi.

Brunšmić (J.) Kameni spomenici hrvatskoga narodnoga Muzeja u Zagrebu. (Vjesn. hrvat. Arheol. Društva, Zagreb, 1905, N. S., VIII, 35-106, 132 figs.) Describes and figures nos. 58-189 of stone statues, sculptures, inscriptions, etc. (Roman, Greek, etc.) in the Croatian National Museum at Zagreb (Agram).

Starine ranijega srednjega vijeka iz Hrvatske i Slavonije. (Ibid., 208-220, 8 figs.) Treats of antiquities (bronze fibulae, etc.) of the early Middle Ages in Croatia and Slavonia, specimens of which are in the Croatian National Museum.

Nekoliko našašća novaca na skupu u Hrvatskoj i Slavoniji. (Ibid., 176-192, 7 figs.) Treats of nos. 18-25 of numismatic finds (Italian, African, Hungarian, Teutonic, etc.) in Croatia and Slavonia.

Caskey (L. D.) Notes on inscriptions from Eleusis dealing with the building of the porch of Philon. (Amer. J. Archaeol., Norwood, Mass., 1905, IX, 147-156, 1 pl.) Treats of 6 inscriptions and the data to be obtained therefrom. The restorers reproduced the building substantially as it was before its destruction; though the workmanship is Roman, the forms are those of the fourth century B. C., copying the best period of Greek architecture, as was the custom of the age.

Diehl (—) Kleinere volkswissenschaftliche Mitteilungen aus Archivalien. (Hess. Bl. f. Volksk., Lpzg., 1905, IV, 206-210.) Treats of St. John's day celebration in Dreieich in 1578, cemeteries in 1611 and 1710, votive offerings in 1628, a witch of 1663.

Dieterich (A.) Griechische und römische Religion. (Arch. f. Religsw., Lpzg., 1906, VIII, 474-510.) Resumes and critiques of recent works (1903-1905) relating to Greek and Roman religion, including Harrison's *Prolegomena to the Study of Greek Religion* (Cambridge, 1903), Frazer's *Early History of the Kingship* (Lond., 1905), Reinach's *Culte, mythes et religions* (t. I, Paris, 1905), de Visser's *Die nicht-menschen-gestaltigen Götter der Griechen* (Leiden, 1903), Bloomfield's *Cerberus, the Dog of Hades* (Chicago, 1905), Foucart's *Le culte de Dionysos en Attique* (Paris, 1904), Decharme's *La critique des traditions religieuses chez les Grecs* (Paris, 1904), De Marchi's *Il culto privato di*

Roma antica (Milano, 1903), Cumont's *Die Mysterien des Mithra* (Leipzig, 1903), Lucius-Anrich's *Die Anfänge des Heiligenkults in der christlichen Kirche* (Tübingen, 1904), and Politis' *Thesaurus of Modern Greek Folk Ideas* (1904).

Fossum (A.) The theatre at Sikyon. (Amer. J. Archaeol., Norwood, Mass., 1905, XX, 263-276, 2 pl., 3 figs.) Describes investigations made in the summer of 1898, with restoration of certain parts. The object of one reconstruction was to deepen the stage according to the method adopted at Priene—"it is of Roman origin and may date from the period when Sikyon superseded Corinth in political significance."

Frasseto (F.) Sopra due crani rinvenuti nell' antico sepolceto di Bovolone veronese attribuito ai terramaricoli. (A. d. Soc. Rom. di Antrop., 1906, XII, 145-153.) Describes two male skulls (indexes, 75.2 and 70.7) in the Florence Anthropological Museum, exhumed in 1876 in the Veronese cemetery of Bovolone, attributed to prehistoric *terramaricoli*, but really Ligurian. Dr. F. thinks that the *terramaricoli* were Ligurians, the *terramarine* being "stations."

Crani rinvenuti in tombe etrusche. (Ibid., 155-182, 6 figs.) Describes, with measurements 15 skulls (3 pentagonoid, 4 ovoid, 8 ellipsoid; 12 male, 3 female) from Etruscan tombs—sutures and special bones are examined in the second part of the article, pages 177-182 (the occipital presents the most variations and anomalies). Dr. A. considers the Etruscan (Italy) a mixed people, a view in harmony with linguistic and archaeological facts. Like the Italians, they belonged to the Mediterranean race. They arrived in Italy in the 8th century, B. C. Of the crania here considered 10 have cephalic indexes under 76.

Fürst (C. M.) Skelettfynd i jämtländska grafvar från den yngre järnåldern. (Ymer, Stockholm, 1905, XXV, 372-401, 20 figs.) Describes, with details of measurements, crania and other skeletal remains of three men and two women from the iron age cemetery at Ås in Jämtland (see *Ås, K.*). Another grave contained the skeletons of two young children. In all 5 males, 3 females, and 2 children are referred to. Of the male skulls two are dolichocephalic, one mesocephalic, the female dolichocephalic. Height (estimated):

- males 1620-1710 mm., females 1500-1580. The dolichocephalic crania represent the characteristic Scandinavian type of the period. The mesocephalic skull resembles the coast-type from mediaeval Trondhjem — a mixed, or foreign, element.
- Giuffrida-Ruggeri (V.)** Elenco del materiale scheletrico preistorico e protostorico del Lazio. (A. d. Soc. Rom. di Antrop., 1906, xii, 183-189.) Treats of a male skeleton (skull mesocephalic) from an eneolithic grave near Sgurgola, two male skulls from an artificial eneolithic grotto at Cantalupo Mandela (indices 70.97 and 86.54), a male brachycephalic skull from the tomba of the Esquilina, an imperfect male skeleton from Gabii (with excessive development of forearm). The skull from Sgurgola is colored red on forehead and face.
- Cro-Magnon, Grenelle e i loro meticci. (Ibid., 219-221.) Criticizes Houzé's account of the *ultis* of Cro-Magnon and Grenelle, said to be represented by the skull from Sclaigneaux. What has really happened in these regions is a mixture of races giving rise to an increase of brachycephals.
- Gobat (T.)** Un antique nom topographique de Liège, Merchoul. (Bull. Inst. Archéol. Liégeois, Liège, 1905, xxxv, 141-154.) Discusses the etymology of the local name *Merchoul* in Liège (several derivations have been put forth). The word is not derived from *Matricula*, but, as the form *Merdeoull* indicates, refers to the deposit of human ordure.
- Gusinde (K.)** Ueber Mundartengrenzen im Kreise Oels. (Mitt. d. Schles. Ges. f. Volksk., Breslau, 1904, ii, xii, 86-88.) Gives specimens of the diphthongizing dialect from Great and Little Zöllnig — 5 brief "summer songs," 6 lullabies, and a few superstitions.
- Haas (A.)** Fünf Sagen aus dem Riesengebirge. (Ibid., 91-94.) Five short tales (Night-hunter, "Candlestick," Will-o'-the-wisp, Digging for Treasure, the "Bierwetzell") collected in Brückenberg in 1904.
- Hartung (C.)** Einiges neuere über das antike und das heutige Rom. (Mitt. d. K.-K. Geogr. Ges. in Wien, 1906, xlix, 118-136, 2 figs.) Notes on the forums, the baths of Diocletian, Caracalla, and Agrippa, the Porta Pia (Michelangelo), various palazzi, the Capitol, temple of Vesta, recent excavations at the base of the statue of Domitian, on the Palatine, etc.
- Hastings (H. R.)** A bronze age "pocket" from Avgo, Crete. (Amer. J. Archaeol., Norwood, Mass., 1905, ix, 271-285, 1 pl. 6 figs.) Describes an interesting "pocket" of 28 objects (knife-blades, tweezers, hooks, rings of bronze, gems, beads, etc.) of the bronze age (early Mycenaean) found on the hill of Trapezi above the church of Avgo in eastern Crete in March, 1903. They may be part of the funerary objects belonging to the grave (or graves) of the occupants of the "Mycenaean farmhouse" discovered by Miss Boyd in 1901 close to the Avgo church.
- Hellmich (M.)** Sagen aus den Kreisen Glogau, Falkenberg and Grünberg. (Mitt. d. Schles. Ges. f. Volksk., Breslau, 1904, ii, xii, 94-97.) From brief tales concerning the "Feenat-Weiber," devil-stone, "black ditch," water-maiden.
- Hellquist (E.)** Svenska sjönamn. (Svenska Landsmål, Stockholm, 1903-1905, xx, 3-610, 1-32.) Exhaustive alphabetic list (A-S) of Swedish lake-names, with historical, etymological, and grammatical notes. A valuable contribution to the literature of geographic names.
- Herrmann (F.)** Eine Geisterbannung im Schlosse zu Darmstadt, 1717-1718. (Hess. Bl. f. Volksk., Lpzg., 1905, iv, 167-176.) Describes in detail, with citations from contemporary accounts, excommunications of spirits at the castle of Darmstadt in 1717 and 1718.
- Hippe (H.)** Volkstümliches aus einem alten Breslauer Tagebuche. (Mitt. d. Schles. Ges. f. Volksk., Breslau, 1904, ii, xii, 79-85.) Cites from a Breslau diary of 1640-1669 in Latin belonging to the then rector of the gymnasium, Elias Maior, various items of folk custom and belief: Lätare Sunday, Christmas bells, Wandering Jew, exhibitions of dancing bears, horse-races, races of women in 1666, protection of workmen against ill-repute as gallows-makers, etc.
- Hofler (V.)** Prehistorijsko groblje u Smiljanu Gospica. (Vjesn. hrvat. Arheol. Društva, Zagreb, 1905, N. 3., viii, 193-203, 6 figs.) Treats of the prehistoric cemetery (22 graves) at Smiljan near Gospic and the objects discovered therein — bronze fibulae, coils, bracelets, etc.; amber beads and other ornaments.
- Olovna pločica sa zavjetnim reljefom

- iz Srpske Mitrovice. (Ibid., 118-128, 8 figs.) Describes a votive relief-plate of lead from Servian Mitrovice compared with other like objects of Roman type from Petrovaca, etc.
- Olovna pločica sa reljefom iz Divosa. (Ibid., 204-207, 2 figs.) Describes a lead relief-plate from Divos.
- Johnson (P.)** Sägner från östra Göttinge. (Svenska Landsmål, Stockholm, 1904, 108-115.) Gives texts of 9 brief historical tales (17th century, relating to Danish-Swedish war), from the district of Södinge in northern Scania. Also "pact between a peasant and the devil," from Emålsöv.
- Kahle (B.)** Der Ragnarökmythus. (Arch. f. Religionsw., Lpzg., 1906, VIII, 431-455; 1906, IX, 61-72.) Chiefly a résumé and critique of the views of Dr Axel Olrik as expressed in his *Om Ragnarök* (1902), with notices of subsequent literature of the subject. K. agrees with O. in considering the poem essentially heathen, but differs from him as to the Christian influence.
- Der höchste Name. (Ibid., 556-558.) Points out that the belief in the power of "the highest name" is also found in Old Icelandic literature.
- Karo (G.)** Archäologische Funde und Forschungen. (Ibid., 511-525, 1 pl. 3 figs.) Treats of Evans' explorations in Knossos, Doerpfeld's in Phaistos, and those of the Italian expedition on the Hagia Triada hill west of Phaistos, itself, the chief objects discovered, graves and buildings examined, etc.
- Kent (R. G.)** The city gates of Demetrias. (Amer. J. Archaeol., Norwood, Mass., 1905, IX, 166-169, 3 figs.) Notes on Thessalian and Magnesian gates of Demetrias (founded ca. 290 B. C.), near the modern Thessalian city of Volo. K. concludes that the main gate of Demetrias was where the city walls once stood; these have now entirely disappeared.
- Kjellmark (K.)** Ett gravfält från den yngre järnåldern i Ås i Jämtland. (Ymer, Stockholm, 1905, XXV, 351-371, 32 figs.) Describes excavations (4 men's, 2 women's, and one child's grave) at a cemetery of the younger iron age near Ås in Jämtland, the objects discovered (iron axes and knives, bells, bit, rings, sword, etc.; bronze buckles, sword-hilt, etc.; bead necklaces; bits of silver, and silver coins—Swedish, Anglo-Saxon, etc., 994-1035), also human remains. See *Fürst (C. M.)*.
- Lewis (A. L.)** Prehistoric remains in Cornwall. Part 2, West Cornwall. (J. Anthr. Inst., Lond., 1905, XXXV, 427-434, 2 figs.) Treats of the "Dance Maen" or "Dawns Maen," a stone circle near Penzance; the "Nine Maidens" at Boscawen-an, three miles from the first; "Lanyon Quoit" and "Chun Quoit"; the "Tregaseal Dancing Stones"; the "Men-an-Tol," on the moors north of Lanyon Quoit, and near it the "Men Scryffys"; the Boskednan circle, the Zennor Quoit, and the "Mulfra Quoit"; the beehive chambers at Chrysoister, Gulval; the Trencrom hill-fort; the subterranean passages and chambers at Carnbrae, and the "Fogou" near the "Dance Maen."
- Mehlis (C.)** Die neolithische Ansiedelung an der Eysersheimer Mühle in der Pfalz. (Globus, Brnschw., 1906, LXXXIX, 57-59, 11 figs.) Describes briefly objects found at the Eysersheim neolithic "station"—stone axes (jadeite and syenite), "amulets," pottery fragments (some 70 were found) with little ornamentation. The culture-data here indicate the end of the neolithic period in the region of the middle Rhine (left) and transition to the metal period.
- Nehring (W.)** Die slovenische Volkslieder. (Mitt. d. Schles. Ges. f. Volksw., Breslau, 1904, II, XII, 44-61.) Résumé and critique of Dr K. Strekelj's monumental *Slovenske narodne pesmi* (2 vols., Ljubach, 1895-1903), with notices of previous literature of the subject. Professor S's work contains 1006 narrative (epic) and 3722 lyric songs. The epic songs are richer in content and perhaps more varied as to motive.
- Nichols (M. L.)** Geometric vases from Corinth. (Amer. J. Archaeol., Norwood, Mass., 1905, IX, 411-421, 6 pl., 4 figs.) Treats of 16 geometric vases discovered in 1898-1899 near the center of Peirene, "resembling most closely those found in the lowest geometric layer at Eleusis," and belonging probably to the tenth century B. C., immediately post-Mycenaean. This find, according to Miss N., is "one more link in the chain of evidence in favor of the spread of the Dorian influence along the Isthmus into Attica." Nothing Mycenaean has yet been found at Corinth. The style of decoration is very simple.
- Nilsson (A.)** Åril, spis och ugn. (Ymer,

- Stockholm, 1905, xxv, 193-214, 30 figs.) Treats of hearth, fire-place, and oven, old and new in various parts of Sweden.
- Olbrich (C.)** Die Freimaurer im deutschen Volksglauben. (Mitt. d. Schles. Ges. f. Volksk., Breslau, 1904, H. XII, 61-78.) Résumés German folk-beliefs concerning freemasons. Their "never-ending work to escape death," "magic" attributes, lore relating to symbols of the craft, connection with spirits and with the devil, etc. Old heathen lore has caused much to pass over to the folk-ideas about freemasons, aided by their secret doings and the fact that their great festival day is June 24, St John's day, near the summer solstice and rich in folk-lore and mystic beliefs.
- Pacala (V.)** A Nagyszében vidéki resinárok lakóhelye és életviszonyai. (Földr. Közlem., Budapest, 1905, XXXIII, 307-325, 350-367, 13 figs.) Treats of the life and activities of the people of Resinar near Nagyszében—dwellings, dress and ornament, weddings, disease and death, funerals, feasts and festivals, agriculture and related pursuits, trade, etc. Old customs and rites are dying out. The "Bethlehem singers" at Christmas and other similar practices at Easter still survive. The wedding ceremonies also are interesting.
- Pugh (W.)** Cockney children's games and chants. (Grand Mag., Lond., 1906, III, 595-599.) Gives "reminiscences of a writer who was once himself a London Arab, and speaks out of the fulness of knowledge." Most of the chants are used "as accompaniments to the innumerable variants of 'Kiss-in-the-Ring.'"
- R. (C.)** Prähistorischer Bergbau auf dem Mitterberge bei Bischofshafen. (Globus, Brnschw., 1906, LXXXIX, 90-92.) Brief account of the numerous remains of prehistoric (bronze and iron age) copper-mining on the Mitterberg near Mühlbach in the Salzburg Alps.
- Renard (L.)** Exploration d'un cimetière franc à Latine. (Bull. Inst. Archéol. Liégeois, Liège, 1905, XXXV, 155-162, 1 pl., 1 fig.) Brief description of 9 tombs and contents explored by the author and M. E. Dairn-Rigot in 1901-1903 at Chapelle St Maur, Latine. The cemetery dates from the Frankish period (V-VI century A. D.) and no Christian ornaments or symbols were discovered; the funerary objects were poor and the pottery crude.
- Rapport sur les recherches et les fouilles exécutées en 1905 par l'Institut Archéologique Liégeois. (Ibid., 347-360, 1 pl., 3 figs.) Brief account of excavations at Ponthoz (Frankish cemetery), Waterscheid (Hallstatt incineration), Fraiture (Belgo-Roman tumulus), Grivegnée (IV-V century A. D.), Vervoz (Belgo-Roman), Java (Frankish cemetery), Herstal (Roman coins), etc.
- Reventlow (C. D.)** Ringsjöfynden. (Ymer, Stockholm, 1905, XXV, 156-172, 13 figs.) Treats of the finds (flints, axes of stone, implements of horn, pottery, fragments, etc.) at the "stations" on Lake Ring, the inhabitants of which were probably "lake-dwellers," or lived on rafts (a folk of hunters and fishers). No remains of cereals were found, but hazel-nut shells, raspberry-seeds, fruit-stones, etc. They seem to have been "half-nomadic lake-dwellers." Some of the axes are of the type belonging to the older kitchen middens of Denmark.
- Robarts (N. F.)** Notes on a recently discovered British camp near Wallington. (J. Anthr. Inst., Lond., 1905, XXXV, 387-397, 8 figs.) Describes excavations and lists objects found (cake of copper, earthenware loom-weights and perforated tiles, animal bones, pottery, mealing-stones, flints, partly calcined skeleton of child, remains of cremations, etc.). The fragments of red Samian ware (ca. 100 A. D.) found near by, as well as those of a "late Celtic" (ca. 50 A. C.) pedestal urn, may be much later than the camp itself. The remains are those of "a British camp, probably the headquarters of the Bibroci."
- Rogers (J. D.)** The meaning of ΠΥΡΡΟΣ in two Teian inscriptions. (Amer. J. Archaeol., Norwood, Mass., 1905, IX, 422-426.) Argues for some connection between the Teian blocks and the πυρρος of the Teian inscriptions. Perhaps these blocks were used for deme lists, and "citizens of a certain tower are not those resident in or near a tower, of the city walls, but those enrolled in the deme register, called πυρρος because of its fantastic shape which attracted attention and determined ultimately the popular designation."
- Scholz (O.)** Schlesische Tänze. (Mitt. d. Schles. Ges. f. Volksk., Breslau, 1904, H. XI, 88-91.) Describes peasant dance (minuet), peasant minuet (by four couples), "Tanz och mit der

Muhme," "O du lieber Augustin," Maidens' dance, from the Jauer district in Silesia.

Schulte (O.) Spottnamen und -Verse auf Ortschaften im nördlichen Oberhessen. (Hess. Bl. f. Volksk., Lpzg., 1905, IV, 142-167.) Cites the *blason populaire* relating to more than 100 places in northern upper Hesse. Among the types or groups of these names and verses are those attributing droll or foolish things to the inhabitants, those referring to the economic situation of the place, those dealing with the moral qualities of the people, those based on peculiar pronunciations, etc., those nicknames for which no explanation is apparent, those "wandering verses" applied again and again with mere change of name of place, the *blason populaire* of towns and cities, those verses, etc., referring to the various places in a parish, etc. On pages 165-166 examples of incorrect and correct interpretations are given.

Siebourg (M.) Zwei griechische Goldfäden aus der Sammlung C. A. Niessen in Köln. (Arch. f. Religsw., Lpzg., 1906, VIII, 390-410, 2 figs.) Describes and discusses two gold head-bands with Greek inscriptions from Bêt Dibrin (the ancient Baitogabra) between Jerusalem and Ascalon in Judea. The significance of death-wreaths and the accompanying inscriptions is considered at some length—the inscriptions indicate folk-belief in communication with the dead. Some heathen formulae have been taken over by Jews and Christians.

Siebs (T.) Ruf, Sang und Spruch beim Aus- und Eintrieb des Viehs. (Mitt. d. Schles. Ges. f. Volksk., Breslau, 1904, H. XII, 97-102.) Treats of the language used to call and drive away cattle, etc., in Seidorf in the Hirschberg district. Specimens of the narrative songs used with the call are also cited.

Stuart (D. R.) Imperial method of inscription on restored buildings: Augustus and Hadrian. (Amer. J. Archaeol., Norwood, Mass., 1905, IX, 427-449.) Hadrian "acted with a chivalrous regard for the memory of the founder that matched or even surpassed the respectful attitude of Augustus." S. finds evidence that C. I. L. VI, 31060 cannot be connected with the Palatine Temple of Victory and used as a proof of restoration by Augustus, and that the letters of the inscription of Agrippa on the Pantheon

date back to Hadrian's restoration and no farther.

Svensén (E.) Ordspråk, ordstäv ock talesätt från nordöstra Småland. (Svenska Landsmål, Stockholm, 1904, 42-65.) Gives list in dialect (alphabetic according to chief word) of 500 proverbs, sayings, refrains, figures of speech, riddles, prayers, formulae, etc., from the northwestern part of the province of Småland in Sweden.

Tonks (O. S.) A new kalos-artist: Phrynos. (Amer. J. Archaeol., Norwood, Mass., 1905, IX, 288-293, 5 figs.) Discusses two fragments of a Greek kylix (belonging to the cycle of the Lesser Masters), with bust of woman, profile to left. These with a British Museum kylix (Stroibos vase) the author considers to be the work of a new kalos-artist Phrynos, whose "love name" was Stroibos.

Usener (H.) Quellenverehrung. (Arch. f. Religsw., Lpzg., 1906, VIII, 559-560.) Cites evidence for Low Saxon spring and fountain cult as late as the second half of the 16th century.

Vasić (M.) Bronzani sud iz Viminacija. (Vjesn. hrvats. Archeol. Društva, Zagreb, 1905, N. S., VIII, 148-158, 4 figs.) Describes a bronze vessel (bust of young satyr) from a grave at Kostolca, the old Roman colony of Viminacium.

Visor. (Svenska Landsmål, Stockholm, 1904, 66-72, 121-133.) Gives texts of 20 ballads, love-songs, etc., collected chiefly by L. F. Rådf in the district of Ydre, Ostergothland.

Vram (U. G.) Frammenti scheletrici in tombe cristiane presso Nikšil, Montenegro. (A. d. Soc. Rom. di Antrop., 1906, XII, 191-194.) Describes briefly with measurements fragments of 3 skeletons from a Christian cemetery at Kocani near Nikšil in Montenegro.

Weissenberg (S.) Speise und Gebäck bei den südrussischen Juden in ethnologischen Beziehung. (Globus, Bruchswg., 1906, LXXXIX, 25-30, 5 figs.) Treats of implements for salting meat and methods of preparing it, use of cooking vessels, hand-washing, meals and meal-times, holiday fare, favorite foods, fasts, baking bread, its forms, etc. (the bird is a favorite motive in Jewish cult and domestic furniture), among the South Russian Jews.

Wigström (E.), **Nyblin** (A. G.), ock **Lampa** (S.) Seder ock bruk från olika

landskap. (Svenska Landsmål, Stockholm, 1904, 116-120.) Notes on Christmas and Easter customs in Scania, Bleking, Närke, and Gotland, peasant wedding and dance in Närke, etc.

Wigström (Eva). Folketro ock sägner. (Ibid., 309-404.) Nos. 906-1313 of brief legends and folk-beliefs from various parts of Sweden.

Wiklund (K. B.). Ortnamnen på 1904 års Norrbottenskartan. (Ymer, Stockholm, 1905, xxv, 90-103.) Discusses the orthography of place-names on the 1904 map of Norrböthnia. Place-names should be written according to the laws of the language spoken by the people proper to the region—Swedish, Finnish, Lapp, as the case may be.

— Språken i Finland, 1880-1900. (Ibid., 132-149, 3 maps). Discusses, with detailed statistics, the distribution of languages in Finland from 1886 to 1900. During this period the percentage of Finnish-speaking people increased from 85.29 percent to 86.75 percent, the percentage of Swedish-speaking decreasing from 14.32 percent to 12.89 percent, although an actual increase in numbers occurred. The numbers of Lapps rose from 961 to 1,336; Russians from 4,195 to 5,939; Germans from 1,720 to 1,925. There were in 1900 ca. 2,000 Gypsies, at least 1,100 Jews, 102 Tatars, some Esths, Polacks, Letts, etc., besides scatterings of various other European nationalities.

Wilke (A. G.). Zur Entstehung der Spiral-Dekoration. (Z. f. Ethn., Berlin, 1906, xxxviii, 1-33, 76 figs.) Discusses the origin of the spiral decoration on ceramic objects, etc., from prehistoric central Europe, particularly Butmir. The place of origin of this motif was southern Hungary (Transylvania and Butmir in particular); the motif arose through the shifting against one another of concentric semi-circles (the art of central Europe ca. 2500 B. C.); this accounts for the appearance of the meander and spiral ornaments in widely separated places having no intercourse with one another.

Zieleński (T.). Hermes und die Hermetik. (Arch. f. Religsw., Leipzig, 1905, viii, 321-372; 1906, ix, 25-60.) In this detailed discussion of Hermes and the origin of Hermetic doctrine, philosophy, cosmogony, etc. (there are three dogmatic layers of Hermetic literature; a higher and a lower Hermetics), the author

comes to the conclusion that "Hermetics spread from Arcadia over Cyrene to Egypt."

AFRICA

Biasutti (R.). "Crania Aegyptiaca." Esame di 42 crani di Egiziani antichi conservati nella collezione del Museo Nazionale d' Antropologia, Firenze. (A. p. l'Antrop., Firenze, 1905, xxxv, 323-362.) Describes, with details of measurements, 42 ancient Egyptian skulls of diverse provenience (Cro-Magnon type 1, Mediterranean 31, Austro-African 7, nannocephalic 2, brachycephalic 1). The alleged negroid element is discussed. B. concludes that the population of ancient Egypt was very heterogeneous, having in the lowest stratum a notable proportion of "Austro-African" (Bushmanoid) with some traces of nannocephalic, pigmy types. The brachycephalic element, unlike the Cro-Magnon (very old) and the prevailing Mediterranean type, entered Egypt only in the historic period. Other negroid traces are very rare and sporadic. The indigeneness and development *in situ* of the ancient Egyptians are justified by the African origin of the primitive *fond*.

Binetsch (G.). Beantwortung mehrerer Fragen über unser Ewe-Volk und seine Anschauungen. (Z. f. Ethn., Berlin, 1906, xxxviii, 34-40.) Answers to questions concerning: Name, word for God (*Mawu*), creation-legend (first human beings came from sky in basket), soul (heaven not so good a place as earth for man), spirit, love and worship (sacrifices, etc.), idols (provincial, town, house; good and bad spirits), sorcery, rain-making, sacred animals (leopard, hyena, crocodile, dog, cat; with some tribes sheep, goat, and white-tailed black monkey), mystic ceremonies, witchcraft.

Dennett (R. E.). Notes on the philosophy of the Bavi. (J. Anthr. Inst., Lond., 1905, xxxv, 48-55.) Treats of cosmological ideas (everything is a manifestation of *Nsambi*), temporal ideas (months, seasons), the categories (6—water, earth, fire, motion, fruitfulness, life), the sacred groves (6 groups of 4 each, corresponding to the categories). The author believes that "beyond fetishism . . . there is a higher form of religion among the Bavi (of Luango), which is connected with certain symbols in the form of: (1) sacred groves, (2) sacred lands and rivers, (3) sacred trees, (4)

sacred animals, (5) omens, and (6) the seasons." There are six sets of 24 symbols each.

Fritsch (G.) Die Buschmänner der Kalahari von S. Passarge. (Z. f. Ethn., Berlin, 1906, XXXVIII, 71-79.) Critique (severe in places) of Passarge's article on the Kalahari Bushmen in *Mitt. u. d. deutschen Schutzgebieten* for 1905. Dr. F. believes that the so-called ancient and mighty Bushman kingdom of Chief "Dukuri" belongs to the realm of fable. The hair system of the short primitive peoples of central and southern Africa is considered (embryonal vestiges, etc.).

Gentz (Lt.) Die Bureneinwanderung nach unseren deutschen Kolonien. (Globus, Brnschw., 1906, LXXXIX, 53-55.) Discusses recent Boer immigration into German South Africa. A great Boer settlement in Madagascar was planned, but not favored by the French government.

Gottschling (E.) The Bawenda: a sketch of their history and customs. (J. Anthr. Inst., Lond., 1905, XXXV, 365-386, 1 pl. 1 fig.) Treats of name (people of Wenda, their former home); history (European settlers not allowed previous to 1872; kingdoms, chiefs); nationality (author speaks of mixture of Asiatic blood), appearance and character, habits of life (dwellings, food, drink, etc., sleeping, agriculture, pastimes, trades, war); curriculum, vitz (birth, education, declaration of manhood and puberty, engagement and marriage, family life, daily routine of work, meals, pleasures, illness, death and burial); tribal constitution (royalty, power of chief, taxation, division of country); administration of justice (courts, punishment, peculiar laws); religious customs (gods, priests and witch doctors, places of worship, sacrifices and prayers, superstitious customs); knowledge of nature and natural phenomena (astronomy, time-reckoning, meteorology, geology, botany, zoölogy, etc.); proverbs and adages (author possesses ca. 600); language (clearly Bantu, but a distinct dialect of the stock).

Grant (W.) Magato and his tribe. (Ibid., 266-270.) Brief sketch of Magato, called by Europeans the "Lion of the North," paramount chief of the Mavenda in 1894, and his people (circumcision-rites, houses, animal-killing, social code, counting, religion — no superstitious

ideas concerning snakes—"bride purchase").

Hall (R. N.) Stone fort and pits on the Inyanya estate, Rhodesia. (Ibid., 92-102, 2 pl., 4 figs.) Gives descriptions, plans, and measurements. Remains of old aqueducts and hill terraces occur in large numbers throughout Inyanya — the former are said to be "a marvel to all modern engineers who inspect them." These remains "have no similitude whatever to the remains of ancient buildings found in any other part of Rhodesia." Many of the trees found in this area "are not indigenous to S. E. Africa."

Härtter (G.) Sitten und Gebräuche der Angloer, Ober-Guinea. (Z. f. Ethn., Berlin, 1906, XXXVIII, 40-51.) Treats of protective ceremonies for infants, naming, visit of mother to fetish-priest, determination of what ancestor is incarnated in child, education, marriage (seclusion of bride, concubinage, wedded life and widowhood), sickness and disease (caused by spirits), and their cure-bay sorcery, death and burial, punishment of spendthrift heirs and debtors (nephew inheritance obtains), etc.

Der Fischfang im Ewheland. (Ibid., 51-63.) Describes fishing in sea, lagoons, rivers — much of their knowledge of the art has been derived from the natives of Accra and the Fantis (also from the Europeans). Implements used are hooks (introduced by Europeans), spears, several varieties of nets, basket-trap, etc. Water-poisoning is also in use. At pages 62-63 is a list of the Ehw names of edible and inedible fishes.

Spiele der Ewbeer. (Ibid., 64-70.) Describes *Ependschia* (a stone-passing and guessing game for children); *patapre* (a word-game), *afutiti* (a leaping over obstacles), *misawo 'vene mtele* (a breaking into a circle game), *ve or didada* (gambling game with fruit thrown on mat), *hodada* (played with 4 cowrie-shells), *atidada* (something like German "Mühlesieben"), etc. Of games of foreign origin are noted cards and a ball-game.

Klose (H.) Musik, Tanz und Spiel in Togo. (Globus, Brnschw., 1906, LXXXIX, 9-13, 71-75, 13 figs.) Treats of the war-drums of the Ewe, the fetish-drums of the great idol Wurupong in Kunya, their uses and the dances connected therewith, the signal drums and their "language"; the drums of Ho adorned with trophies of human skulls,

traveling Hausa dance girls and singers, etc.; the war-drums of the Hausa; the drums and other musical instruments, "bands," etc., of the people of Bassari; the mask-dance of the Anago, gambling games and songs of various sorts (particularly the *adi*), children's games, etc.

Loir (A.) L'alimentation des indigènes. (Rev. Scient., Paris, 1906, v^e s., v, 590-592.) Dr L. thinks (he saw the Kaffirs of S. Africa in 1902) that "the deplorable condition of these natives is due to defect of alimentation"—something like beri-beri or scurvy is epidemic among the coolies. Sudden changes in food and modes of nourishment are dangerous for these people. Mine and prison fare soon kill them, or nearly so. The native *menu* is always best.

Myers (C. S.) Contributions to Egyptian anthropometry. II. The comparative anthropometry of the most ancient and modern inhabitants. (J. Anthr. Inst., Lond., 1905, xxxv, 80-91, 6 curves.) Discusses measurements and indices, variability, frequency-distributions, correlation, of prehistoric skulls from Nakada and the heads of fellahin conscripts from Kena and Girga, "living under similar conditions and in the same region of the valley of the Nile as did their Nakada ancestors about 5000 B. C. M. concludes that "there is no evidence that the 'prehistoric' and the modern population of southern 'Upper Egypt' differ in physical measurements." The homogeneity of the Egyptians there is the same as it was 7000 years ago.

Randall-MacIver (D.) The manufacture of pottery in Upper Egypt. (Ibid., 20-29, 6 pl.) Describes the three kinds of pottery (hematitic, painted, household—the first, original in Nubia; the second, confined to two or three places between Assuan and Kenh; the third, manufactured everywhere north of Assuan but foreign to Nubia) chiefly made in Upper Egypt to-day. Comparison with ancient Egyptian pottery is reserved for another article. The processes of making are noted with some detail.

Reinach (P. S.) The negro race and European civilization. (Amer. J. Sociol., Chicago, 1905, xi, 145-167.) Discusses race-mixture, type of civilization, social organization, slavery, lack of mechanical arts ("greatest deficiency of the negro race"), rudimentary art-sense, expertness in oratory with rich folklore, fetishism (intellectual life chiefly taken

up with this). Low stage of culture among African negroes "due rather to social, political and climate conditions than to the physiological, personal incapacity of the negro." The "missionary-made" man is not the ideal. An economic foundation for African culture is necessary; in creating this European influence may succeed, but permanent bondage under the whites is the wrong way.

Schenk (A.) Note sur dix crânes du Congo Français. Trilu des Yeveng; race des Fang. (Bull. Soc. Neuchât. de Géogr., Neuchâtel, 1905, xvi, 296-303.) Brief description, with measurements, of 10 Fang skulls (6 male) from the Yeveng tribe in French Congo, collected by Father Trilles. All are dolichocephalic.

Torday (E.) and Joyce (T. A.) Notes on the ethnography of the Ba-Mbala. (J. Anthr. Inst., Lond., 1905, xxxv, 398-426, 3 pl.) Treats of migrations, resemblances between the Ba-Mbala (a Bantu people of the Inzin-Kwila region) and the tribes of Portuguese West Africa, clothing and ornament (red body-painting, scarification at puberty, tattooing simple and rare), food (salt used as money; geophagy and cannibalism common; drunkenness a sign of wealth), fishing and hunting (rather poor shots), crafts (basketry learned from the Ba-Yanzi, pottery made by women, metal-lurgy, house-building, etc.), trade (shell-money, markets, credit-system), social organization ("communism with a strong flavoring of anarchy"; unit is village community, with chief holding position by wealth; *muri*, a special class; marriage, child and adult), slavery (three-fourths slaves), property (renting of land unknown), education and psychology (children precocious, geographical knowledge and memories good, arithmetic poor), message-arrows, music (no foreign songs sung), justice (= "palaver"—round this their whole life centers), war, poison ordeal, death and burial (children before puberty, plants, food, and weapons have no soul), religion (*maloki* a malevolent being; mapuans, fetishes), reproduction, abnormalities, language (vocabulary, pages 421-426).

Traeger (F.) Die Troglodyten des Matmata. (Z. f. Ethn., Berlin, 1906, xxxviii, 100-114, 17 figs.) Account of visit in 1903 to the troglodytes of the Matmata mountains in south Tunis,

their houses, dress, physical characters (projecting ears are possibly due to head covering), customs, etc. The inhabitants represent Arabized (clothing, customs, speech) Berbers. The houses number 200 with a population of some 1200. Hamy seeks to identify the houses of Médinine with Sallust's *mapalia*. In any case these cave-dwellings are very old.

Trilles (H.) *Proverbes, légendes et contes Fang.* (Bull. Soc. Neuchât. de Geogr., Neuchâtel, 1905, XVI, 49-294 pp., 5 pl.) In this interesting and rather comprehensive monograph Father Trilles, after an ethnographic introduction, treats of proverbs and sayings (67-111), religious legends and origin-myths (128-170), nature-myths (170-180), wonder-tales (180-205 — giant and dwarf stories abound), animal-stories (205-246 — the tortoise and elephant cycles), moral tales (247-284). In all, the French texts of 34 legends and tales are given, and at pages 287-294 native texts with interlinear translations of four. The proverb is Fang philosophy, history, morals, religion (e. g., "to live with one's wife's relatives is to become a child again"). Meal-time (6 p. m.) is the story-hour. The tale-tellers are wandering bands and old men. The animal-tales have two cycles, that of the tortoise, typifying the wisdom of the little, and that of the elephant, typifying the wisdom of the big. The Fang are a fine African people of Bantu stock, cannibals, but eating only prisoners.

Villattes Forschungen in der Sahara. (Globus, Brunschwig, 1906, LXXXIX, 55-57, 1 fig.) Résumés briefly the explorations of N. Villatte, the scientific member of the Sahara expedition (1904) of Captain Laperrière in the region toward the Niger. At the wells of Timisso was found a grotto with Tamashek inscriptions and drawings of animals (cattle, camels, ostriches).

Wheelwright (C. A.) Native circumcision lodges in the Zoutpansberg district. (J. Anthr. Inst., Lond., 1905, XXXV, 251-255.) Describes the "lodges" or "schools" (there are three grades of teachers with different functions) as observed among the Bavenda in 1904, and the ceremonies in connection therewith. They were originally held in April or May at intervals of five years. Native public opinion drives many to submit to the rites (great secrecy is maintained)

and many Christian natives break away from the mission stations to join the "schools," which usually last three months.

White (F.) Notes on the great Zimbabwe elliptical ruin. (Ibid., 39-47, 6 pl.) Author gives results (descriptions, measurements, etc.) of survey made by him in 1903, compared with the data of Bent and Swan, etc. W's observations throw out altogether the "cubit theory" of Bent and Swan and show how little foundation there is for the view that the builders were Semitic (Arabs), and that sun-worship had here reached an advanced stage. The plans of the builders, whoever they were, "are quite wanting in symmetry or in evidence of careful design."

Willoughby (W. C.) Notes on the totemism of the Becwana. (Ibid., 295-314.) Treats of words used to express the totem idea, tribal totems, animal totems (especially crocodile and hare), cattle in Becwana life and customs (ox sacrifice, etc.), purification of warriors, marriage ceremonies, prerogatives of chiefs, children's play, oaths, plant and cereal totems, New Year's purification, etc. W. states that though every Becwana tribe has its present-day totem (and every small boy knows what his tribal totem is), yet it is decadent, and these totems have practically no influence upon their great rites and everyday customs. The central place in all the ritual of the greater ceremonies is taken by cattle. The most valuable evidence for plant-totems (veneration of *lerōse* and Kafir-corn) is to be found in the initiation ceremony for girls.

ASIA

Adachi (B. und Y.) Die Handknochen der Japaner. (Mitt. d. Med. Fac. d. K.-Jap. Univ. zu Tokyo, 1905, VI, 349-375, 6 pl.) In this eighth contribution to the anatomy of the Japanese, Dr and Mrs A. give the results of their examination of the bones of the hand of 25 adult Japanese (m. 15, w. 10) and 10 adult Europeans (m. 4, w. 2, ? 4) — the various bones are studied in detail, with measurements. The hand-bones of the Japanese are shorter and proportionally thicker than those of Europeans; the articular surfaces are more curved, more extended, more rarely split, etc. (the articular surface is more curved and ex-

tensive in women); the basal and terminal phalanges are relatively long, the metacarpal and the middle phalanx shorter in Japanese hands; the terminal phalanx is slimmer and more pointed. Slimness or thickness of hand and finger bones cannot be explained as being due to work, though the differences in articular surfaces doubtless are. The fine work, however, of the Japanese is more a product of experience than of particular finger-forms. So, too, perhaps the stiff European hand. Japanese children can often press their fingers back to touch the fore-arm.

Brockelmann (C.) Ein Tieropfer in der georgischen Kirche. (Arch. f. Religsw., Lpzg., 1906, VIII, 554-556.) Calls attention to the fact that (as noted by the Patriarch Macarius of Antioch in 1671) the sacrifice of animals lasted in the Georgian churches till far on in the seventeenth century.

Butler (H. C.) Preliminary report of the Princeton University expedition to Syria. (Amer. J. Archaeol., Norwood, Mass., 1905, IX, 389-400.) Brief account of investigations of 1904 at Bosra, Si' Umm idj-Djimal, the 'Ala country, il-Andarin (the ancient city of Androna), Kerratn (almost as extensive as il-Andarin), the group of towns in the northern end of the Djebel Bārīshā, etc. Hundreds of inscriptions were copied, squeezes of architectural details made, also hundreds of photographs.

Dhorme (P.) La terre-mère chez les Assyriens. (Arch. f. Religsw., Lpzg., 1906, VIII, 550-552.) Points out traces in cuneiform texts of the tradition of the earth-mother among the Babylonians and Assyrians (e. g., in part of the myth of Ea and Atarhasis).

Falk (A.) Om utvecklingen af kändedom om Kaspiska hafvet. (Ymer, Stockholm, 1905, XXV, 36-75.) Sketches the development of our knowledge of the Caspian sea, from the time of the geographer, Hecataeus of Miletus, down.

Fraenkel (S.) Ausorientalischen Quellen. (Mitt. d. Schles. Ges. f. Volksk., Breslau, 1904, II, XII, 42-44.) Cites from various authorities data concerning the "fire ordeal" and "witchcraft" in Arabia.

Karutz (R.) Von Buddhas heiliger Fussspur. (Globus, Braunschwg., 1906, LXXXIX, 21-25, 45-49, 1 fig.) Résumés data concerning the sacred footprints of Buddha in various parts of India (some

are not reputed to be old; the famous one of Ceylon is "father" of many). Also detailed description of an ebony plate copy (now in the Lübeck Ethnological Museum) of the footprint according to Siamese symbolic lore (108 figures are on it).

Littmann (E.) Inscriptions. (Amer. J. Archaeol., Norwood, Mass., 1905, IX, 400-410.) Treats briefly of the inscriptions collected by the Princeton University expedition of 1904 in Syria—Latin 45, Greek 776, Nabatean 105, Salfatic 1,295, Syriac 65, Arabic 138, Hebrew 1. Many of the Latin, Greek, and Nabatean inscriptions are epitaphal and funerary. The new Salfatic inscriptions add much to our knowledge of the life and language of the ancient northern Arabs (new names of deities and tribes occur).

Peters (J. P.) The palace at Nippur Babylonian, not Parthian. (Ibid., 450-452.) Criticizes views of Hilprecht and Marquand. P. considers the palace Parthian, ca. 1200 B. C. Greek (Mycenaean) influences are apparent in the architecture.

Robinson (D. M.) Greek and Latin inscriptions from Sinope and environs. (Ibid., 294-333.) Reproduces and discusses 79 Greek and Latin inscriptions and 17 others from elsewhere mentioning Sinopeans—about one-half were discovered by the author in 1903. These consist of inscriptions on vase-handles, dedications, on sarcophagi, gravestones, etc. The 3 Latin inscriptions are new.

Rose (H. A.) Hindu pregnancy observances in the Punjab. (J. Anthr. Inst., Lond., 1905, XXXV, 271-278.) Treats of Hindu "rites, some of which appear to be relics of an old custom of re-marriage during the first pregnancy"; strict taboo on first menstruation after marriage, observances at mid-pregnancy, the *kanji* and *devā-dhāmī* of the seventh month, the ceremonies of the eighth month (*athvānsā*, *māwāī*), taboos during eclipses, rites to avoid abortion.

—Muhammadian pregnancy observances in the Punjab. (Ibid., 279-232.) Treats of the observances of the seventh month (*safwahin*, *safwānsā*) and ninth month (*naumāī*). In Delhi many elaborate customs (some borrowed from the Hindus) connected with pregnancy survive. Thin milk in the mother's breasts presages a boy. Many food taboos exist.

Volland (Dr) Bilder aus Armenien und

Kurdistan. (Globus, Brunschwig., 1906, LXXXIX, 41-44, 7 fgs.) Notes on the tells of the plain of Charput, ruins of old Malatia; modern Malatia and Charput.

INDONESIA, AUSTRALASIA, POLYNESIA

Foy (W.) Australien, 1903-04. (Arch. L. Religsw., Lpzg., 1906, VIII, 526-549.) Reviews and résumés of literature: Spencer and Gillen's *The Northern Tribes of Central Australia* (Lond., 1904), Howitt's *The Native Tribes of South-East Australia* (Lond., 1904), and various articles by Mathews, Roth, Clements, Peggs, and others.

Giglioli (E. H.) Il tavau danaro o valuta di penne rosse dall'Isola Deni o S. Cruz, Melanesia. (A. p. l'Antrop., Firenze, 1905, XXXV, 389-392, 1 fg.) Describes from specimens in the museum in Florence the *tavau*, a sort of "money" of red feathers, in use on the island of Sta Cruz, Melanesia. This "money" is kept wound on two bark rings, the feathers being attached to a body made from strips of pandanus leaves; various ornaments of shell, pieces of mother-of-pearl, etc., are attached. The ornamented part is 8 mm. long and 57 mm. wide.

Haddon (E. B.) The dog-motive in Bornean art. (J. Anthr. Inst., Lond., 1905, 113-125, 19 fgs.) Discusses the dog-motive in the tattoo-patterns, bamboo-carvings, etc., of the Bahau-Kenyah-Kayans, etc., of Borneo, and the modifications of it by the Kalamantan, who have absorbed some of their culture. Mr H. thinks this motive originated with the Bahau-Kenyah-Kayans and was carried with them in their migrations—in Sarawak the dog's head appears conventionalized as a rosette. Among the Kalamantans the dog-motive is looked upon as a prawn; by the Ibans of Rejan as a scorpion.

Lang (A.) The primitive and the advanced in totemism. (Ibid., 315-336.) Discusses the question whether the Central and Northern Australian tribes (as Professor Spencer believes), or those of S. E. Australia on the Murray and Darling rivers are "the most primitive (the word does not refer to material progress) in religion and in social organization." L. holds that the totemism of the Central Australian Arunta, *contra* Spencer, is not at all primitive, but has been modi-

fied by the stone amulet and reincarnation belief.

Lasch (R.) Ein neuer Beitrag zur Kunde der Eingeborenen Westaustraliens. (Mitt. d. k.-k. Geogr. Ges. in Wien, 1906, XLIX, 137-141.) Résumés the data (furnished by Robert Austin) in W. E. Roth's "Notes of Savage Life in the Early Days of West Australia" (*Proc. Roy. Soc. Qnsld.*, 1903, XVII pt. 2, 45-69), relating to physical characters, disease, hunting and fishing, food, moral ideas, education and disposition, death and spiritism.

Ling Roth (H.) Tatu in the Society islands. (J. Anthr. Inst., Lond., XXXV, 283-294, 3 pls.) General description, instruments and pigments used, age at operation, method of tatu, origin of the custom (for women it is a mark of puberty and for men a seal of manhood and the performance of duties), the decay of the art (due to the missionaries).

Mathews (R. H.) Sociology of some Australian tribes. (J. & Proc. R. Soc. N. S. W., Sydney, 1906, XXXIX, 104-123.) Treats of the Wombaia of the Northern territory, the Wongaibon on the Lachlan river, Barkunjee of western New South Wales, the first more in detail (subdivisions, marriage-sections, marriage-sequences and progeny-names). Mr M. is of opinion that "neither promiscuous intercourse of the sexes, nor . . . 'group marriage' have ever existed among the social institutions of the aborigines of Australia." Also "the divisions into cycles, phratries, and sections have not been deliberately formulated, with intent to prevent consanguineous marriages and incest, but have been developed in accordance with surrounding circumstances and conditions of life." He criticizes Spencer and Gillen's and Howitt's recognition of "two exogamous groups," substituting therefor two principal divisions. Among the Wongaibon, Barkunjee, etc., "exogamy is entirely absent."

— Ethnological notes on the aboriginal tribes of Queensland. (*Proc. and Trans. Roy. Geogr. Soc. Austral.*, Brisbane, 1905, XX, 49-75.) Treats of the sociology of the Wonkamurra, Murawurri, Badyeri (at pages 55-65, grammar and vocabulary), Inchalachee, succession of totems, etc. Also in reply to "grossly inaccurate statements of Professor Baldwin Spencer," Mr M. again emphasizes

devolution of section names through the mother, and the absence of exogamy.

— Ethnological notes on the aboriginal tribes of Western Australia. (*Ibid.*, 1904, XIX, 43-72, 2 pl.) Treats of rock carvings and paintings (on Depuch island there are hundreds of carvings), organization (several systems — the *tuar* the most primitive), initiation ceremonies, superstitions (prowling malevolent spirits, food-supply ceremonies, serpent monsters, man-stealing creature, delaying darkness, stopping rain, etc.), language (brief vocabularies from Roeburne district and Lower Fitzroy river).

— Ethnological notes on the aboriginal tribes of New South Wales and Victoria. (*J. R. Soc. N. S. W.*, Sydney, 1904, XXXVIII, 203-381). This article, with some additions, has been reprinted (*Sydney*, 1905, XIV, 183, 4 figs.). It contains a mass of information concerning sociological and marriage institutions, language, food regulations, sorcery and magic, initiation and other ceremonies, mythology, and folklore (some 20 tales, pages 135-174, 177-183), etc. The bibliography (pages ix-xiv) shows Mr M. to have published 95 different articles relating to the Australian aborigines. The *pirrimbir* or "avenging expedition" of the natives of S. E. New South Wales is described by the author for the first time (pages 37-50) with some detail. At page 103 we learn of the existence among many tribes of "a hybrid tongue or jargon, comprising a short code of words, by means of which a mother-in-law can carry on a limited conversation in the presence of her son-in-law, respecting some of the events of daily life." Some sections of this monograph, the author expects, "will completely revolutionize all the old school notions respecting the organization of Australian tribes," and, "it will be evident that the old women's yarns about 'marriage by elopement,' 'marriage by capture,' and 'group marriage' are practically impossible as fundamental matrimonial laws in aboriginal society."

Roth (W. E.) Notes on government, morals and crime. (*N. Queensld. Ethnogr. Bull.*, No. 8, Brisbane, 1906, pp. 12, 4 pl.). Treats of assembly of elders, camp council, rights and powers of individual, sex relations, obscenity (sodomy, masturbation, bad language) laziness, falsehood, gluttony, respect for old age, treatment of non-tribesmen, saluta-

tion (kissing fairly rare; much formality), trespass, inheritance, crimes against the person and against property, property-marks and "message-sticks," expiation. The "message-sticks" are discussed in detail, with many figures. Dr R. believes that "the marks on the so-called 'message-sticks' do not convey the slightest intimation of any communication." They merely accentuate the *bona fides* of the messenger.

Stephan (Dr) Anthropologische Angaben über die Barriai, Neupommern. (*Globus*, Braunschwg., 1906, LXXXIX, 14-15, 1 fig.) Describes, with table of measurements, three Barriai young men (20-23 years) from New Pomerania. Cephalic indices, mesocephalic and dolichocephalic; stature of tallest, 1700; of shortest, 1595 mm.

Thomas (N. W.) Australian canoes and rafts. (*J. Anthr. Inst.*, Lond., 1905, XXXV, 56-79, 3 pl., 2 figs.). This valuable article, with abundant bibliographical references, discusses types, distribution, construction and furnishings, use and methods of propulsion, etc., of the bark canoes, dug-outs, logs and rafts used for navigation by Australian aborigines. In the west and south navigation and even swimming are said to have been unknown. A list of canoe-names is given (73-77). The one-piece bark canoe is probably original in Australia; the sewn-bark type, limited to the northern region, may have been imported; the dug-out of the Blue mountains is probably native; the out-rigger is of Papuan origin. T. thinks the Tasmanians reached that island by canoes (they resemble the Seri balsas), not by land.

AMERICA

Bourne (E. G.) The travels of Jonathan Carver. (*Amer. Hist. Rev.*, N. Y., 1906, XI, 289-302.) Discusses the life and activities of Carver, the character and sources of his famous book of travels, suspected as early as 1789 of being a mere compilation. Prof. B. is of opinion that the evidence here presented makes it clear that "the *Travels* of Jonathan Carver can no longer be ranked as an authentic record of the observations of the supposed author. In its present form the *Travels* is the work of the editor, Dr. John Coskley Lettsom, who was a voluminous and facile writer and the charitable friend of Carver."

Bushee (F. A.) Communistic societies in the United States. (Polit. Sci. Q., Boston, 1905, xx, 625-664.) Critical historical study of the various groups (Owenite, Fourierite, recent socialistic and communistic, religious, etc.) of communistic societies in the United States, 1732-1900, their origin, and the causes of their successes and failures. Lack of elasticity needful for the free play of individual desires is a marked cause of non-success. Dr B. has noted about 100 of these attempts at communistic life in the United States.

Bushnell (D. I., Jr) Appunti sopra alcuni oggetti dell' America del Nord esistenti nel Museo Antropologico di Firenze. (A. p. l'Antrop., Firenze, 1905, xxv, 363-382.) Describes various ethnological objects from North America now in the Anthropological Museum in Florence: Grooved stone axes, celts, "banner stones," other stone objects, chipped stone implements, disks, pipes (Sioux and Ojibwa), pottery fragments, hats (Haida), moccasins (Algonquian, etc.), ornaments and decorations in skin, etc., knife-sheaths, wampum and bead-work, lacrosse-racket (Ojibwa), ornaments, etc., of the missionary era (Tadousac). See also *American Anthropologist*, 1906, N. S., VIII, 243-255.

Friederici (G.) Der Tränengruss der Indianer. (Globus, Braunschweig, 1906, LXXXIX, 30-31.) Treats, with numerous references to literature of subject, greeting guests and strangers by weeping and sighing, a custom found both in South America (Charruas, Tupi, Lenguas) and in North America (Texas, Caddoan tribes, Sioux, etc.). F. considers this greeting nothing more than a senselessly exaggerated and degenerate form of courtesy "raised to the highest" power.

— Ueber eine als Couvade gedeutete Wiedergeburtzeremonie bei den Tupi. (Ibid., 59-60.) Discusses an old custom (he who has killed an enemy, is, at the cannibal feast, made to lie still in a hammock, given a little bow and arrow to shoot at a wax target; also given a new name, etc.) reported by Hans Stade; also the name-giving ceremonies of the Tupi—these are "due to fear of the spirit of the slain." Ethnologic parallels from the Aztecs and Pueblo Indians are cited.

Gann (T. W.) The ancient monuments of northern Honduras and the adjacent

parts of Yucatan and Guatemala, the former civilization in these parts and the chief characteristics of the races now inhabiting them; with an account of a visit to the Rio Grande ruins. (J. Anthr. Inst., Lond., 1905, XXXV, 103-112, 1 fig.) Notes on buildings within mounds, stone-faced pyramids, ovoid underground chambers, former civilization (no metals), pottery (3 sorts), burial customs, religion, physical characters of modern Mayas, language, native arts and agriculture, influence of white civilization (altogether evil)—visit to ruins, "good specimen of Toltec architecture."

Giuffrida-Ruggeri (V.) Gli indigeni del Sud-America centrale fotografati dal Boggiani. (A. p. l'Antrop., Firenze, 1905, XXXV, 383-387, 1 pl.) Notes on the Boggiani collection of photographs of Indians of central S. America (See *American Anthropologist*, 1905, N. S., VII, 325). Facial and other peculiarities are discussed—"the secondary (or tertiary) sexual characters are well marked in the faces of these Indians."

Hill-Tout (C.) Report on the ethnology of the Statumit of British Columbia. (J. Anthr. Inst., Lond., 1905, XXXV, 126-218.) In this important monograph are treated ethnography and sociology (list of 30 settlements), marriage (nearness of blood the only bar), dwellings, food, dress, puberty (Statumit customs *visu generis*), mortuary (taboos and prohibitions) and birth customs, "salmon ceremonies," totemism (personal is earlier), *nomenclature* (system of naming true source of group names), crests (from earlier personal), time-divisions, sundry beliefs and superstitions, linguistics (156-177), myths and traditions (177-205—English texts of 7 native texts, interlinear translation and free rendering of 2), vocabulary (206-218) of some 850 words. With regard to totemism and certain magical ceremonies there are striking resemblances between these Indians and the Arunta, etc., of central Australia. The Statumit were once a strong and populous Salish tribe.

MacCurdy (G. G.) Archaeological researches in Costa Rica. (Ibid., 437-442, 2 pl., 3 figs.) Critical résumé of Hartman's *Archaeological Researches in Costa Rica* (Stockholm, 1901).

Nordenskiöld (E.) Beiträge zur Kenntnis einiger Indianerstämme des Rio Madre de Dios-Gebietes. (Vmer, Stock-

holm, 1905, xxv, 265-312, 35 figs.) Gives ethnological results of expedition of 1904-05 among the Tambopata-Guarayo, Yamiaca, etc., of the Rio Madre de Dios country. Tribal nomenclature and distribution, organization (chiefdom important), language (brief vocabularies of Tambopata-Guarayo, Araza, Yamiaca, Atsahuaca, Tuyoneiri — the first two are Tacana, the third and fourth Pano, the last neither Tacana nor Pano), physical characters, war, friendly intercourse, migrations and agriculture (fields widely scattered), fishing and hunting (few tame animals), weapons (bow and arrow in detail), houses (each tribe has several dwelling-places in connection with its various fields), family (small, monogamous), fire and food-preparation (vegetable food most important; eat all day), disease and death, etc., (dysentery; clean, daily baths; not cannibals), clothing and ornament (ornaments on cotton shirts few; hunting trophies worn; nose-piercing; necklaces), dance and song with feather-dress, painting face and body, hammocks and basketry, drawings (Yamiaca drawings on clothes, walls, etc., due to more contact with whites), hospitality (marked; no word for "thank you," no handshake, only nodding with head as greeting). N. has found out much that is new about these "wild Chunchos."

— Ethnographische und archäologische Forschungen im Grenzgebiet zwischen Peru und Bolivia, 1904-1905. (Z. f. Ethn., Berlin, 1906, xxxviii, 80-99, 20 figs.) Treats of the Quechua Indians of the borderland between Peru and Bolivia and the results of archeological investigations (*chulpas*, burial-caves, etc.) on the eastern slopes of the Andes. Among the objects found were bronze needles (*topos*) with llama-heads or leaf heads, such as are still used by Quechua women, pestles, pottery fragments — sometimes quite modern objects (later additions to original votive gifts). In one burial cave were 200 skeletons, in one *chupa* 16; few had but one. Certain old Quechua customs (dances, burial of property with dead, foundation-sacrifice, "magic" for dry weather, making-sick, etc.) are noticed. The "wild" Indians or Chunchos are briefly considered.

Palmer (T. C.) Indian implements collected on the river shore at Chester, 1893 to 1897. (Proc. Del. Co. Inst.

Sci., Media, Pa., 1906, 1, no. 2, 26-28, 1 fig.) Describes briefly a collection of arrow heads (110 in number), "reject" clippings and flakes, pottery fragments, piece of slate gorget, scraper, hammer, axes, etc., presented by the author to the museum of the Society. A large number of the arrow-heads are of the "white flint" so common along the Delaware. In the angle between the river and Lammokin run once stood an Indian village.

Seler (E.) Das Dorfbuch von Santiago Guevea. Eine zapotekische Handschrift aus der Mitte des sechzehnten Jahrhunderts. (Z. f. Ethn., Berlin, 1906, xxxviii, 121-155, 36 figs.) Describes and discusses (hieroglyphics, names, numbers, words, etc.) a Zapotec Ms. of 1540 (from two copies, one at Guevea, one in the Mexican National Museum). Three languages appear, Aztec, Zapotec, Spanish. The upper half of the leaf contains the hieroglyphics of the place and those of 19 points around it; the lower pictures of the people presenting tribute to the kings.

Sergi (G.) Contributo all' antropologia Americana. (A. d. Soc. Rom. di Anthropol., 1906, xii, 197-204, 1 pl.) Treats of three American types of crania: Ancient Peruvian, which has negroid or oceanic pigmoid elements (cranial form, capacity, stature) due to trans-Pacific immigrants — this skull is *Sphenoides parvus peruvianus*; modern Bolivian Indian (*Ovoides bolivianus*), with Melanesian affinities; mound-builder skull with central Asiatic relations. Prof. S. sees two pre-Columbian currents of immigration into America, one Oceanic, the other Asiatic.

Simmons (H. G.) Eskimåernas forna och nutida utbredning samt deras vandringsvägar. (Ymer, Stockholm, 1905, xxv, 173-192, map, 6 figs.) Discusses former and present distribution and migrations of the Eskimo tribes, with references to recent authorities, particularly Boas and Thalbitzen — the map is modified from that of the latter (it shows regions now uninhabited by Eskimo but containing evidences of their former residence: Southeast coast of Labrador, east coast of Greenland, the Arctic archipelago between Greenland, Baffin Land and Victoria Land, and a portion of the extreme N. E. Asiatic coast). One of the notable Eskimo "ruins" is "Eskimopolis" on Buchanan Strait, visited by the author in 1899. S. considers rash

the conclusions of Storm and Isachsen as to the post-Norsemen population of Labrador by the Eskimo.

Smith (H. I.) Recent archaeological discoveries in northwestern America. (*Bull. Amer. Geogr. Soc.*, N. V., 1906, XXXVIII, repr. pp. 1-9.) Summarizes briefly explorations (1897-99, 1903) of village sites and graves in the southern interior of British Columbia and the interior of Washington; shell-heaps and cairns on the coast of British Columbia and Washington; sites along the Columbia river, between Portland and the coast. Mr S. found that the interior S. British Columbia culture was a unit, that of the coast another unit, while in central Washington was a culture differing in some respects from both. The Lillooet valley shows influences of both coast and interior. The material culture of the prehistoric people resembled that of the Indians of to-day; inter-tribal interference was greater in earlier times.

West (G. A.) The aboriginal pipes of Wisconsin. (*Wisc. Archeol.*, Madison, 1905, IV, 47-171, 17 pl., 205 figs.) This valuable and exhaustive monograph treats of tomahawk pipes (author be-

lieves that "most of the metal artifacts found in Wisconsin, commonly attributed to French origin, were really made by the British and Dutch"), other metallic pipes, clay and pottery trade pipes, pottery pipes (native pipes comparatively few, pot-making more developed here), stone pipes, Siouan pipes (calumets), "Micmac" pipes, portrait pipes (stone pipes with carved human heads most common form of effigy pipe in W.), effigy and emblematic pipes (comparatively few), "bridegroom" or double-stemmed pipes (one bowl with two stem-holes), "flatform" or "monitor" pipes (nearly all surface finds) of various types, handled pipes (22 examples, no two of same pattern), disk pipes of three varieties, high-bowled, pot-shaped, vase-shaped, square-bowled, ovoid, lens-shaped, keel-shaped, double conoidal pipes, pebble pipes ("rudest pipe form imaginable"), tube pipes, peculiar tubes, California tube pipes, etc. A number of the Wisconsin pipes are evidently exotics (due to barter, trade, conquest). "Indian tobacco" of several sorts (kinnikinnik, etc.) was used by the aborigines of Wisconsin, but "tobacco, as we now know it, was introduced by the whites."

ANTHROPOLOGIC MISCELLANEA

The Agamemnon of Æschylus. — On June 16 and 19, 1906, in the new Stadium of Harvard University the *Agamemnon* of Æschylus was given in Greek by students of the University. The rounded end of the Stadium, where was seated the audience, was separated from the remainder by the scene representing the palace of the king at Argos. The effect aimed at was that of a Greek theater of the Fourth Century B. C. Before the portico of the palace, which was raised but a few inches from the ground, was the round orchestra for the chorus, who marched but did not dance.

The color-scheme and polychromic decoration of the scene represented perhaps all that both archeology and weathering suggest to the modern savant and traveler.

The pronunciation of Greek used stood well the test of speech and singing; the only possible exception was the diphthong *eu*, which came perilously near degenerating, or disintegrating, into two sounds.

The acting, and the enunciation and execution of the music were excellent. The composition of the music was a work of great cleverness, if not of very great talent. Given the strictest construction of Greek meter, allowing little but simple 2- and 3-timed rhythms, given a chorus of men's voices alone and an unyielding impression of melancholy to produce with them, given an orchestra of clarinets, bass-clarinet, and bassoon alone as accompaniment, Mr Ellerton Lodge, the composer, yet achieved dignity and variety and above all an effect that should not be made ridiculous by the towering solemnity of the awful tragedy itself. Avoiding the pitfalls of an archeological following of the Greek "modes," Mr Lodge yet introduced a certain haunting effect into the melodies that cannot have been far removed from the original. The absolute lack of the 4-measured repeated phrasing of *Frage und Antwort* was a delight to the modern ear and a lesson to the modern composer who thus far has failed to realize the undeveloped capacity for rhythm of the human mind.

As an archeological reproduction the rendering of the *Agamemnon* was noteworthy, and the profound impressiveness created by it only proved once more the essential sameness of the human dramatic appreciation independent of time and place.

C. PEABODY.

Recent Researches by the University of California.— During the field season of 1906 the Department of Anthropology of the University of California carried on the following investigations in connection with the Ethnological and Archæological Survey of the State. Dr A. L. Kroeber made ethnological studies among the Yurok, Yokuts, and Mohave Indians. Dr P. E. Goddard investigated the little-known and almost extinct Athapascan groups situated between the Hupa and the Wallaki. Mr S. A. Barrett studied the Pomo and Miwok Indians. Dr R. B. Dixon investigated the ethnology and particularly the language of the Chimariko, who although now reduced to only four survivors constitute an entirely distinct linguistic stock. Miss Constance Goddard DuBois collected information among the Mission Indians, particularly in regard to the ceremonies and myths of the Luisenos. Dr J. C. Merriam, with the assistance of Messrs E. L. Furlong, N. C. Nelson, and A. V. Wepfer, did reconnoissance work in several caves in Shasta county in continuation of previous researches bearing on the antiquity of man, and systematically explored two shell-mounds on San Francisco bay. Mr Joseph Peterson made archeological investigations in eastern Arizona. In continuation and development of the researches of the late Dr Washington Matthews, whose notes and manuscripts are in the keeping of the University, Dr Goddard also conducted studies among the Navaho and Apache.

The American Ethnological Society of New York is about to begin a series of publications which is to contain authentic material collected among native tribes of America. The volumes are to appear at irregular intervals. Notwithstanding the large amount of work that has been done in American ethnology, comparatively little material has been collected regarding the customs, beliefs, and ideas of the natives, in their own words. Most of our collections have been obtained indirectly through the assistance of interpreters, or are discussions of information collected from individuals more or less familiar with English or with the trade jargon. Knowledge possessed by the Indians is of great importance as well to the ethnologist as to the student of the early history of the American continent. For this reason authentic records of information given by the Indians seem to be of prime importance for a thorough study of these subjects. The American Ethnological Society, in beginning its series of publications, is desirous of collecting and preserving for future use such records, and it is hoped that this undertaking will meet with the support of the public. The following volumes are in preparation, and will be published by E. J. Brill, of Leiden, Netherlands:

- VOL. I. WILLIAM JONES, Ph.D., Research Assistant, Carnegie Institution : *Fox Texts*. A collection of historical tales, myths, and accounts of personal religious experiences collected among the Fox Indians, a branch of the Algonquian stock. Recorded in original text, and published with translations. (In press.)
- VOL. II. EDWARD SAPIR : *The Upper Chinook*. An account of the Chinook Indians of upper Columbia river, and a collection of myths and personal accounts. Original texts and translations. (In press.)
- VOL. III. ROLAND B. DIXON, Ph.D., Professor of Anthropology, Harvard University : *Myths of the Maidu Indians of California*.
- VOL. IV. FRANZ BOAS, Ph.D., Professor of Anthropology, Columbia University : *Myths of the Tsimshian Indians of British Columbia*.
- VOL. V. ROLAND B. DIXON, Ph.D., Professor of Anthropology, Harvard University : *Myths of the Shasta Indians of Northern California*.

It is hoped that the following collections also will be published at an early date :

- LIVINGSTON FARRAND, M.D., Professor of Anthropology, Columbia University : *The Alsea Indians of Oregon*.
- H. H. ST CLAIR, 2D : *Texts collected among the Coos Indians of Oregon*.

The price will be approximately \$2.00 for a volume of 300 pages, and proportionately for larger or smaller volumes. It is hoped to bring out about two volumes a year. Communications may be addressed to Mr Harlan I. Smith, Corresponding Secretary of the American Ethnological Society, American Museum of Natural History, New York City.

Virginia Manuscripts.—The Department of Archives and History of the Virginia State Library, in charge of Mr John P. Kennedy, state librarian, has recently issued a most valuable Calendar of Transcripts and Other Historical Manuscripts in possession of the department. The work of classifying and cataloguing the material has been in progress about five years, with the result that more than 177,000 documents are now readily available in a series of more than 3,500 uniform labeled boxes. Special acknowledgment is made of the services of Mr Andrew C. McLaughlin and assistants of the Carnegie Institution of Washington in the listing of Virginia manuscripts in the London Record Office. The collection is particularly rich in material on the land claims, wars, treaties, and general governmental relations of the early Indian tribes.

JAMES MOONEY.

German Anthropological Societies.—The Thirty-eighth general meeting of the German Anthropological Societies and the Fifth joint meeting

of the Anthropological Societies of Germany and Austria will be held at Cologne in August, 1907. It is proposed to make of this meeting an international congress by bringing together the most celebrated anthropological societies and investigators of all lands. The Cologne Anthropological Society extends an invitation to all American anthropologists and institutions interested in anthropology, to be present at the congress, and assures those who contemplate attending that their stay in the old city of Cologne on the Rhine will never be forgotten. The Society will soon issue a program of the proceedings; meanwhile it announces that the greatest possible amount of time during the meeting will be devoted to the colithic question. After the congress an excursion of two or three weeks in the Netherlands and France in all probability will be given, during which the places of greatest interest from an anthropological point of view will receive especial attention. If, however, visitors should prefer to make a tour of Germany, the Societies will consider the possibility of carrying out any proposals to that end that it may receive. Communications may be addressed to the Cologne Anthropological Society (C. Rademacher, Rektor), Zugweg 44, Cologne, Germany.

Monsieur Edouard Piette, the well known writer on prehistoric archeology, died at the Château de la Cour des Prés (Rumigny, Ardennes), June 5th, 1906, in his 80th year. Four years ago Judge Piette gave his incomparable collection, chiefly from the caverns of southern France, to the Musée des Antiquités nationales at St Germain-en-Laye, near Paris.

ACCORDING to the London *Times* an opinion has been widely expressed, both in Oxford and elsewhere, that the services rendered to archeology by Dr Arthur John Evans should be commemorated by a portrait to be deposited in the Ashmolean Museum, of which for nearly a quarter of a century he has been keeper. The discoveries at Knossos are alone more than sufficient to justify this step; but Dr Evans' achievements as a numismatist, historian, and traveler have also earned for him the admiration of scholars. It is felt, moreover, that no more appropriate place for a memorial of him could be selected than the institution which has been raised, in the period during which he has presided over it, and mainly as the result of his energy, generosity and tact, to a place in the front rank among European museums. A committee, of which Dr G. A. Macmillan (St Martin's street, London, W. C.) is the honorary treasurer, has been formed to promote the object in view. The portrait will be painted by Sir W. B. Richmond, and a reproduction in photogravure will be sent to every subscriber.

A COURSE of illustrated lectures on "The Logical Evolution of Industries" will be given by Mr Harlan I. Smith, of the American Museum of Natural History of New York, to the normal domestic art students at Pratt Institute, Brooklyn, during the school year 1906-07. The purpose of the course is to acquaint these prospective teachers of handwork, with primitive arts and tools, that they may more adequately instruct elementary school children in the simple forms of the industrial processes of modern life. The students will prepare for these weekly lectures by a course of reading in the anthropological journals and in books on primitive peoples recommended by the lecturer. Essays on special topics will be prepared by the students from this reading and the lecture material, so that the value of the lecture course will be strengthened through individual student work.

THE SENATE of London University has received from Mr Martin White two further donations—one to provide a salary of £200 a year for Dr Edward Westermarck, university lecturer in sociology, for a further period of five years, the other an additional sum of £700 for the establishment for five years of two scholarships a year, each of the annual value of £35 and tenable for two years. In connection with Mr White's benefaction, special courses will be delivered during the session 1906-07, on ethnology by Dr A. C. Haddon, F.R.S., and on psychology by Dr J. W. Slaughter, Ph.D. (Clark).

REV. S. P. VERNER, who has recently returned from Africa, desires in these pages to disavow the sensational statements that have recently appeared in the public press respecting the African pygmy and Mr Verner's late expedition. Men of science have grown accustomed to such newspaper accounts of alleged discoveries and have learned to disregard them; others are requested to take no account of the stories alluded to, but to await an announcement which Mr Verner promises to make regarding his expedition, in a forthcoming issue of the *American Anthropologist*.

A NEW MUSEUM is to be built on Audubon Park Terrace, 155th st., west of Broadway, New York, for the American Numismatic and Archaeological Society, of which Mr Archer M. Huntington is president. The edifice will be 39.8 feet front and 63.3 feet deep, of concrete construction. It will be three stories in the classic style, with Ionic columns. The main floor and the second story will be devoted to the library, the meeting halls, and exhibition galleries. The building is to cost \$55,000.

THE FIRST MEETING of the California Branch of the American Folk-Lore Society during 1906-07 was held in South Hall, University of Cali-

foria, Berkeley, on September 11. Professor A. L. Kroeber spoke on "California Indian Myths and Songs," with illustrations on the graphophone.

DR J. WALTER FEWKES, of the Bureau of American Ethnology, Washington, will spend the autumn and winter in archeological researches in Arizona. Mrs Matilda Cox Stevenson, of the same Bureau, has been engaged since spring in studying the natives of the pueblo of Taos, northern New Mexico.

WE LEARN from *Nature* that the museum of the University of Otago, New Zealand, has been enriched by the gift of a large series of ethnological objects from Mr and Mrs James Mills. The collection, which consists chiefly of weapons, mostly Polynesian, was made about twenty-five years ago.

DR ALEXANDER F. CHAMBERLAIN, of Clark University, will deliver the next course of popular scientific lectures at Weeks Institute, Clinton, Mass., on the first three Fridays of November, 1906. The subject is "The American Indians."

THE TITLE of honorary curator has been conferred by the Cincinnati Museum Association on Mr Philip M. Hinkle, who has undertaken the care of its collections relating to American archeology. With him are associated Mr Frederick W. Hinkle and Dr G. B. Rhodes.

DR KARL VON DEN STEINEN has retired from an associate professorship of ethnology in the University of Berlin and the curatorship of the Museum of Ethnology in order to devote his attention to scientific exploration.

AT A MEETING of the officers and council of the Norwegian Geographical Society, in Christiania, on May 19, the gold medal of the Society was awarded to Dr Carl Lumholtz for his scientific explorations.

WE REGRET to announce the death, at Berlin, on July 19th, of Dr Albert Voss, director of the department of prehistorics in the Königliches Museum für Völkerkunde.

PROFESSOR MARSHALL H. SAVILLE, of Columbia University and the American Museum of Natural History, has recently returned to New York after conducting explorations in Ecuador and Colombia during the summer.

INVITATIONS have been extended by the Ober-Bürgermeister of the city of Cologne, Germany, to attend the opening of the new Rautenstrauch-Foest Museums (Museum für Völkerkunde) on November 12th.

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THE MUSIC OF THE FILIPINOS

By FRANCES DENSMORE

INTRODUCTION

During the Louisiana Purchase Exposition at St Louis in 1904 I made a careful study of the native music in the Philippine section, receiving in my work the cordial encouragement and cooperation of Dr Albert Ernest Jenks, ethnologist in charge of the exhibit. For many years I have been a student of Indian music and expected to find some similarity between the music of the two races, but a few hours among the Filipinos showed that their music belongs to a period of development more primitive than that of the American Indian, and that it lies very near the beginning of musical expression.

My first inquiry was for the music of primitive worship, but at that time no trace of this had been found among either the Negritos or the Igorot, while the Moros, being Mohammedan, had passed the primitive religious state. I believe that continued study would have discovered religious music among these people, but my time was limited and I was unable to make the investigation.

Another phase of primitive music which I did not hear was the industrial music. I was told that in the Islands both the Negritos and the Igorot sing as they plant the rice, but this music was not available for study at St Louis.

For these reasons the very important subjects of religious and industrial music are not considered in this paper either directly or in their bearing on general musical development, but I believe that the music which I heard and analyzed is characteristic of a period of development preceding that of worship or of toil.

During my stay at St Louis I collected observational data from which I have formed certain hypotheses concerning the origin and development of music, and I take the liberty of summarizing the data and stating these hypotheses at the beginning of my paper in order that the method of grouping the facts in the paper itself may be the more apparent.

Four villages were closely studied: the Negrito, the Igorot, the Samal Moro, and the Lanao Moro, these being the most primitive tribes, and entirely distinct in culture and customs. In the last three named I found vocal and instrumental music cultivated as separate arts, the songs being without accompaniment, while in the Negrito village the rhythm of one of the songs was marked by hand-clapping and a hiss as well as by a stroke on a gong; the former being, of course, a more rudimentary accompaniment than the gong because it is a more direct physical response to the rhythmic physical impulse.

I found but two forms of melody-producing instruments in use, the others being percussion instruments which were used in producing a variety of rhythms.

With one exception the songs which I heard were improvised in both words and melody. This was my conclusion from close observation which later was confirmed by an interpreter. Prominent among these improvised songs were those of love and of grief, which formed an interesting subject for study as they were without rhythm in the usual sense of the term. The expression of any living thought contains a certain rhythm, whether that expression be in a free poetic form or in esthetic prose, yet it is often impossible to measure that rhythm by any metrical unit. It is a vibration which we feel but cannot analyze. We seem to realize that its unit is too large for us to grasp. Such was the rhythm of the Moro love songs and the Negrito dirge.

There is undeniably a phase of primitive music in which the idea to be expressed is so simple and the mental and physical states are so perfectly balanced that the musical expression of the idea takes the simple rhythm of the physical organism. This phase was prominent in the Philippine villages; but it was my privilege to hear also the songs which arose from primitive emotions, and the rhythm of

these was as free and unrestrained as the elemental natures from which they sprang.

In the Philippine villages I found four forms of musical expression, which I have arranged in what seems to me the probable order of development, though this must remain a matter of speculation: 1st, instrumental music; 2d, unaccompanied, improvised song; 3d, accompanied, improvised song; 4th, a repeated melody with instrumental accompaniment.

First. Assuming a state of content to be the primary condition of humanity — a content without ambition, struggle, or aspiration — the regular banging upon something that resounds is a natural expression of the physical organism. When this state of content changes to excitement the banging becomes more emphatic and the rhythmic unit is developed by a stronger accent upon alternate beats, expressing the physical agitation. When the mental element becomes a factor the rhythm used is triple as well as double, while in his "mystery songs," with their groping toward the supernatural, the American Indian uses rhythms of 5 or 7, often alternating these with measures of 2, 3, or 4 counts. All this indicates that primitive rhythm is a means of expression, being directly affected by the idea in the mind of the performer.

Second. Next in order I have placed the unaccompanied improvised song, believing that the release of the voice as a means of expression comes first through emotional impetus. A child gives vocal expression to its emotions before it develops the faculty of speech. In Lord Monboddo's *Origin of Language* (vol. 1, p. 469) Dr Blacklock says:

The first language among men was music: before our ideas were expressed by articulate sounds they were communicated by tones varied according to different degrees of gravity and acuteness.

From my own study and observation I believe that the beginning of vocal music is a call or cry, and that when this is consciously prolonged, repeated, and elaborated because it is found a satisfactory means of expression, the art of vocal music is born. I am strongly inclined to the opinion that vocal music originates in the love call, and that its second phase is the cry of the second emotion — grief. After these would come the instinctive search for a supernatural cause, with the introduction of the religious ele-

ment. Driven from the Eden-state of happiness, there follows the life of toil, in which the rhythm of labor tends to develop the rhythm of musical expression, while the supplicating of mysterious Forces, with their personification and propitiation, tends to deepen the emotional element. From this point the musical development is largely molded by the religious element, the influence of which can scarcely be overestimated.

Third. The accompanied improvised song must of course contain a unit of rhythm since it conforms to a rhythmic accompaniment. Our opinion as to whether the rhythmic song precedes or follows the emotional expression must depend on whether we believe the free use of the voice arises first from physical or from emotional impulse. It seems natural to suppose however that the emotions would be the first expression of primitive natures. In either case it is evident that the rhythm of the song is determined by the idea in the mind of the singer. The Filipinos told me that in their accompanied improvised songs they converse on everyday matters, indicating that melody is, to them, a natural means of expression. It is easy to understand how a conventional rhythm can be organized from a free rhythm, but less easy for me to believe that the impassioned cadences of the emotional songs could be evolved in a people of such rudimentary culture and effort, from a set rhythmic form. Such passionate rhythm must always be spontaneous. The white race has well-nigh lost the ability to produce it, and it would be doubly difficult to primitive natures that were accustomed first to singing in regular rhythm. For these reasons I believe that the song without rhythmic unit precedes in point of development the song in regular rhythm.

Fourth. The ability to mentally retain a melody and to repeat it at will is a much higher acquirement than the original production of a melody. When the melody can be voluntarily repeated, with instrumental accompaniment, it is readily elaborated, and musical progress begins to assume tangible form.

THE NEGRO MUSIC

In describing the music of the Philippine villages, the first considered will be that of the Negritos, one of the most primitive tribes in the Islands. Here is to be found the music of a people in whom

the human seems absolutely blended with the animal life. Their first impulse when attacked is to run away or to hide; they hunt with bow and arrow, and use a knife only in cutting up game; the pet monkey is their only domesticated animal; they draw themselves up by their arms like monkeys, and the lines of their bodies, especially in dancing, suggest the pictures of fauns and satyrs by which the ancients expressed their idea of a semi-human race. As previously stated, no form of worship had been found among them. All these facts are very important in studying their musical development.

The gentleman in charge of the village had been with the natives several years in the Islands and was familiar with their customs. I received much assistance from him and from a young Negrito who spoke English brokenly. They told me that the Negritos have three songs, the *Amba*, the *Uso*, and the *Undas*, the first being an expression of general happiness, the second a love song, and the third a funeral song. They are invariably named in this order, and reflect the life of the primitive people. Here are expressed the primary emotions, which form the basis of all music not religious.

The only repeated melody which I found in the four Philippine villages was the *Amba* of the Negritos, both the words and the music of the *Uso* and the *Undas* being improvised. The Negritos are naturally a gentle people. Their native mountains provide them with the necessities of life, and their "song of happiness," by much repetition and a little reaching out after new requirements, has become crystalized into a remembered melody, but the emotions of love and sorrow are still too wild and uncontrolled to follow twice the same melodic path in their vocal expression.

This is the music of the *Amba* :



When sung in this form the intonation was correct, the tone pure and sweet. Soon they began to vary the melody by introducing ornamentation, and in multiplying these embellishments the correct-

ness of intonation was lost, so that at the close of the song they were singing very much "out of tune." The following memorandum indicates the changes introduced :

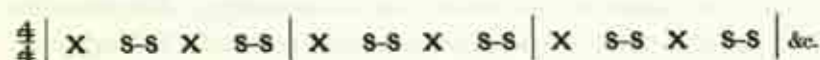


This was sung frequently every day, the time being marked by striking copper gongs and by a sharp clapping of the hands, the singers dancing as they sang. I was told that the music of the *Amba* is always the same but that the words are impromptu and concern the interest of the hour. The young Negrito said :

In *Amba* we say "we very glad on this day," one man he say "I very glad on this day," everybody say "we all glad on this day." Sometimes we sing it for wedding. Maybe sing what we do all day, or we sing "how funny that fat American looks sitting in corner of theater." In *Amba* we sing all about people who come to look at dances.

The *Uso* is primarily a courting song sung by a man and a woman alternately, but it is used on any holiday and may be sung by any number of people, the subject of the song remaining the same. I was told that a man and a woman sometimes reviewed the story of their own courtship by means of this song, which always took the form of a musical conversation. The identity of the song seemed to consist in this conversational form, in the subject-matter, and in the peculiar accompaniment which was always the same, the melody, as previously stated, being improvised. As usually presented the *Uso* was given by four women accompanied by two players on the gongs, who marked the time with four beats to the measure; all four of the dancers marked the time with a handclap on the 1st and 3d counts of the measure; two of the dancers sang alternately and the other two gave a sharp hiss on the 2d and 4th counts, occasionally varying it by a sharp *da* instead of *s-s*. At frequent intervals those who were singing the musical conversation exchanged parts with those who were giving the vocal accompaniment, without interrupting the movement of the dance.

This is the memorandum of the accompaniment to the *Uso*, x indicating a handclap :



A decided emphasis was given the first of each measure.

The following is a memorandum of the music of the *Uso* :



The young Negrito told me that the *Undas* meant "somebody dead." The music was full of wild pathos. In the middle of the little theater sat the man who took the part of the bereaved, and the villagers came, singing the *Undas*, to lay a little gift on the bow and arrows beside him. I was told that in the Islands no one is too poor to bring a gift, though it be only a few grains of rice. One by one they came and went, singing their wild sweet song, but the man did not lift his head or heed their pitiful little gifts of comfort. It was intensely dramatic.

The Negritos sing as they plant their rice, scattering the rice to the rhythm of the song, and they sing as they rest from their work in the evening, but as the *Amba*, *Uso*, and *Undas* were invariably mentioned as their "three songs," I infer that the others were simply a rhythmic comment on the interest of the hour, song being an instinctive form of expression.

The Negritos have three musical instruments : the copper gong, the *bansi* or flute, and the *barimbo* or jewsharp. In addition to these I found a violin in the museum, which was of Negrito manufacture and made entirely of bamboo. It was interesting, but too plainly a copy to be of significance in this connection.

The Negrito gongs used at St Louis were of Chinese manufacture, those beaten from the native copper being considered too valuable to be taken from the Islands, though a few excellent specimens were shown in the museum. The gongs used in the village were flat, about

ten inches in diameter, with straight sides of about two inches. The players were always seated, holding the gong in the lap and striking it with the palms of the hands, used alternately. The *bansi*, or flute, consists of a section of bamboo about two and a half feet long, which is held upright, the performer blowing across the opening at the top, the lower end being closed: there are four finger holes on the upper side and one for the thumb on the lower side. Only one man played this curious instrument — Ybag, one of the oldest men in the village.

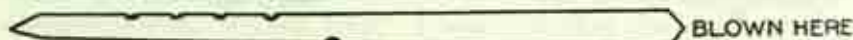


FIG. 17.—Negrito *bansi*.

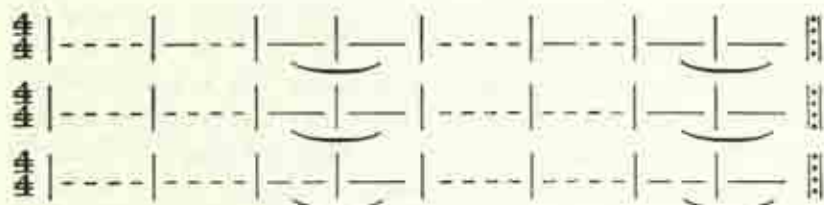
He bent lovingly over his instrument, resting the pointed end on the ground and holding it firmly between his toes.

The music played on this instrument varied greatly with the mood of Ybag. I was fortunate in hearing him one sunny morning when he was in the best possible form. The tone he produced was always sweet and correct in intonation, but on this particular morning I heard him play more than once the following cadenza:



This is the more remarkable as it presents a major scale with an ascending seventh, only one tone (the 6th) being omitted. This succession of tones does not appear in the recorded music of the white race until the close of the Sixth century A.D., when we find it as the 6th Gregorian Tone. The Negrito player could scarcely have learned it from music heard after reaching St Louis, as it is not probable that the construction of his instrument would permit the playing of more than one series of tones upon it. This almost complete major scale was not found in the other villages. Thus it is shown that the most primitive people available for study were doing by musical instinct what the natives in a more advanced state failed to accomplish and what man in a still higher stage of progress does through volition.

The *barimbo*, or jewsharp, consists of a strip of bamboo about ten inches long, with two slits cut in one end forming a "tongue," the strip being trimmed away so that the projecting tongue can be twanged with the fingers as the instrument is held before the lips. The best player was a woman, who readily consented to play for me, and from her work I noted the following rhythms :



She was considered a good performer and I realized her proficiency when a Mangyan was brought forward — sole representative of a tribe even more primitive than the Negrito. He willingly played on the *barimbo*, but gave only an even rhythm, thus :



When questioned about the music of his tribe he said they sing but once and that is at courting time. A strange people, allied to those animals whose love call is their only attempt at music !

THE IGOROT MUSIC

The Igorot music will now be considered. This represents the music of a people in whom progress along all lines has begun. The Igorot are men of moderate stature who fight aggressively, weave, and work in metals. They cultivate the soil intelligently and are industrious in their toil. The carabao is domesticated, also the chicken, dog, and hog, all being used for food ; the chicken and the dog are killed ceremonially and used in the ceremonial feasts.

There were three Igorot villages at St Louis: the Bontoc, the Suyac, and the Tinguianese, the inhabitants coming of course from their respective localities in the Islands. I was able to note the difference in the music of these villages before being aware that they represent distinct divisions of the Igorot tribe. The principal features of musical development were however common to all.

The instrumental music will be noted first. This consists chiefly of the gongs used in dances, each dancer carrying a gong suspended by a loop of cord from his left hand and striking it with a stick held in his right, the dancers moving in a circle counter-clockwise. There seemed to be no leader in the movement of the dance, but there was evidently a leader in the music, the others being divided into groups of two or three and playing a slightly different division of the double rhythm. The gongs were similar to those used by the Negritos, but varied in diameter from about nine to twelve inches. By striking near the edge of the gong a tone was produced about a major third higher than that produced when the gong was struck in the middle; this enabled the players to produce a variety of effects. On one occasion the leader played emphatically the following —



the others playing slightly different divisions. Soon another player joined the circle and boldly gave out this theme —



whereupon the first leader dropped back into the accompaniment.

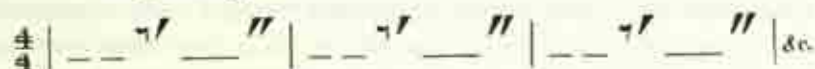
The following rhythms also were noted:



This style of instrumental music was common to all three villages.

In the Tinguianese village I happened on a primitive music lesson, in which one man was teaching two others to play on the gongs, using alternately a drumstick and the flat of the hand. These gongs were about twelve inches in diameter and the stick about eight inches long. The pupils were so slow and stupid that I was able to

make the following memorandum before their lesson was finished. The usual sign indicates an eighth rest, ♯ indicates a beat with the stick, and — a beat with the flat of the hand, the first and third counts being strongly accented.



The only triple rhythm was heard in the accompaniment of a dance given by a man and a woman to the music of two gongs and a small drum. It was given at sunset and suggested a ceremony, as the woman danced with arms extended and palms raised, and the man with arms extended and palms turned downward. This was the rhythm of the gongs:



These various examples of rhythm are interesting, as they show conclusively that among the Igorot rhythm is studied, elaborated, and accurately taught entirely apart from vocal music.

The museum contained several Igorot flutes (of which I saw none in use) and also several bamboo instruments used by the Igorot to mark the time in their singing as they go to and from the rice fields. These resemble tuning forks and vary from eight to fourteen inches in length. They are played by holding the closed end in the right hand and striking the prongs against the left palm. The sound is said to be rather pleasant as the singers come home through the twilight.

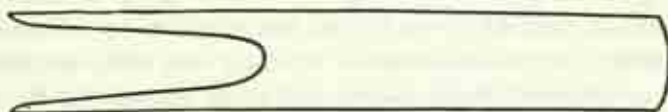


FIG. 18. — Bamboo instrument used by the Igorot for marking time.

Another crude attempt at instrumental music deserves mention — the *boy's museick*. It was perhaps the most primitive stringed instrument ever made, for it had the earth for its body. Its one string was a fiber of bamboo about 45 inches long, the ends wrapped

around stones and firmly imbedded in the ground. Under this string, near the middle, the boy had dug a hole in the ground about the size of a quart cup, lining it neatly with stones. Over the top of this hole he had placed a round piece of tin, on which rested the little stick which formed the "bridge" and supported the string at such an interval that the two ends gave tones a major third apart. A little boy twanged this most happily, and sang a little Igorot song. In answer to my question he said it was *boy's music*.

The vocal music of the Igorot compared with that of the Negrito presents striking differences. Instead of freely running over a scale of seven tones the former concentrates his interest and emphasis on a single tone, and by short melodic excursions along the "line of least resistance," returning quickly to this fundamental tone, he produces a succession of tones which resemble a melody. This music shows that mental control and concentration have begun, but that culture has not progressed to a point which permits the memorizing of a melody. Dr Jenks told me that during his residence in the Islands he had spent many weary hours, notebook in hand, trying to write down the "songs" of the Igorot, but he could not find that they ever sang the same melody twice. This is the more perplexing as they sing with great freedom and confidence, even singing in three or four "parts." My experience was the same as that of Dr Jenks. By closest observation I could detect no definite repetition in this strange ensemble music, but the songs in all the villages invariably ended with the progression 1, 2, or *Do Re*, the latter being strongly accented. This was given by the leader of the song and seemed to be a signal for the singing to cease. My explanation is that the Igorot singers weave together in an impromptu way certain progressions familiar by long use, these progressions being, as indicated, those easiest and most natural for the voice. The Igorot are a people who are obliged to work hard for a livelihood, the part of the country in which they live being not easily cultivated, as rice paddies must be made by building terraces or dams on the mountain sides. Their custom of sallying forth with baskets to collect the heads of their enemies furnishes almost the only relief to their monotonous lives. This condition forms a

great contrast to the idyllic lives of the Negritos, who dance to the music of the flute, and hide behind trees when attacked by an enemy. The sternness of Igorot life does not tend to encourage the expression of emotion through improvised song, and we are not surprised to find their vocal music reflecting the conditions of their general culture.

The interesting question arises: Does not their singing indicate what the line of least resistance, psychologically, may be? And we are interested to learn that for them it constitutes the pentatonic scale, which has long been known to underlie the oldest music of the Scotch, Irish, Chinese, and of the North American Indians. After leaving the fundamental tone the voice most readily and often took the interval of the 6th, descending to the 5th; the 3d was often used, and the 2d but seldom except for the ending of the song.

Whenever a dance was finished the singers seated themselves on their upturned gongs and began a kind of vocal "tuning up" preparatory to the song, members of the group singing stray phrases exactly as members of the orchestra "run over" their instruments before coming on the stage. It was in this "tuning up" that the voices were used most freely, the muscles of the body being relaxed after the dance, and the voices not yet strained to the conscious effort of song. I heard one man sing the following —



this being the pentatonic scale with only one tone omitted.

Soon the regular song began with the usual emphatic *Do*. The leader sang the melody while each of the others sang independently, though occasionally two would choose the same phrase. With the long tones of the melody these accompanying voices interjected shorter phrases resembling those used in the melody itself. These phrases were given with a vociferous accent, the syllable *cha* and a vigorous jerk of the head, so the effect suggested an obligato by barking dogs. Here was the strong sense of rhythm, the pentatonic scale, the ability to sing in "parts," and evident enjoyment in the performance, but it was a musical void. The following is a typical Igorot song:



The vocal music of the Igorot suggests the rhythmic swing of manual labor carried on for many hours of every day: it seems to proceed from the same source as primitive instrumental music and to be an expression of physical impulse rather than of emotion.

Quite different from these wordless songs was a song which I heard at twilight and which the guard told me was sung at no other time. It was in the Tinguianese village and was led by Antonio, whose tattoo showed him to be an accomplished and successful head-hunter. This song evidently contained words and was improvised, but unfortunately I was unable to secure the help of an interpreter in the Igorot study. I noted about twenty lines of the words, or syllables, and the result shows a frequent recurrence of many syllables which may be short words.

Antonio sang one line, then all the chorus responded, then he sang the next line, and so on. Soon a woman took his place as leader. This was the opening of the song:

Pai ne e tantah (chorus)
 Pa ne tah we ah "
 Tha ne ya thung "
 Tha ne ku e na. "

The form reminds one of the *Benedicite*, a form which was used by the Jewish church many centuries before Christ. This seems to indicate that it is an intuitive and primary form of musical expression. There was rhythm in the melody, but the rhythmic periods

were long and swinging ; perhaps, like the *Amba* of the Negrito, it was a musical comment on the events of the day, or it may have constituted a ceremony.

THE MORO MUSIC

The music of the Moros presents another step in musical development, for they have conceived the desire to hear several rhythms at the same time, elaborating the rhythmic idea beyond the accomplishment of the Igorot which consists simply in combining subdivisions of even rhythmic beats. In attempting to express this desire there was no ability to fit together the various rhythms and the Moro orchestras consisted of several instruments playing at the same time, but each independent of all the others. Primitive life is strongly individual in many respects, cooperation and the blending of individual aims in a unity of effort marking the beginning of social and economic progress. The Samal and Lanao Moro are Mohammedan peoples and are governed by sultans and dattos. There has been some advance among them along all lines, and this is reflected in their musical efforts.

The Samal Moro were first studied. These people live beside the sea and pursue the peaceful vocation of fishermen. Their orchestra consisted of two gongs the size of soap kettles, suspended from the rafter of a bamboo house ; two drums about 20 inches high and 10 inches in diameter, held between the knees and struck with the palm of the hand ; one small drum struck with a stick ; and a set of eight gongs ranged on a low frame and played like a xylophone. Some of the instruments were played in triple and some in quadruple time, but I was unable to detect any consonance among them. Close and long-continued observation failed to find these various rhythms coinciding at any point, or uniting to form longer rhythmic units.

The white man takes a musical measure and divides it in various ways, often having difficulty in handling or combining the rhythms produced ; the primitive musicians work from a different standpoint. From my observation I am convinced that the rhythms have originally no connection with one another, but by repetition in concert they come eventually to coincide at certain points. Every

student of primitive music is aware that uncivilized peoples handle combinations of rhythm in a way that bewilders a civilized musician, playing "three against four," "seven or five against two," and alternating with "two against three," changing all the rhythms according to their fancy. This was noticed especially in the Dahomey and similar villages at the World's Fair in Chicago. The Moros have not reached the Dahomey grade of proficiency, and their rhythms are still in a cheerful chaos.

The Moro gongs are all of the same general shape and have each a knob on the top which is bright and shining from use. The two large gongs were struck with a short stick and played by one per-

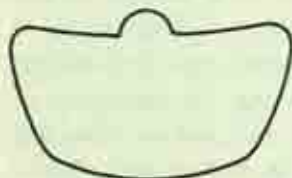


FIG. 19.—Outline of a Moro gong.

former; the tone of these gongs was very penetrating, and it is said that they are used in the Islands for sending messages from one village to another. Dr Jenks told of an occasion on which he wished to summon hastily some men from a settlement several miles away. A native woman struck one of these gongs in a pecu-

liar way, transmitting his message, and in a short time the desired number of men arrived from the distant village. The two gongs in the orchestra were a major third apart, and the following could be heard all day in that part of the Exposition grounds:



The instrument resembling a xylophone played a melody, but careful observation failed to detect a recurrence of melody, although, as in the case of the Igorot songs, there was a uniformity of ending, a certain progression played on this instrument seeming to be a signal for the music to cease. This instrument was played with great freedom, and yet there was no consonance of rhythm between it and either the gongs or the drum. The instrument consisted of eight gongs, varying from six to ten inches in diameter, ranged on a frame about eighteen inches high, the player sitting on a low bench and playing the gongs by striking the knobs with two short sticks held

one in each hand. The gongs rested on stout cords stretched between the ends of the frame, and supported by crossbars between the gongs. Contrary to our custom the highest tones were at the player's left hand. I noticed that the "selection" always ended

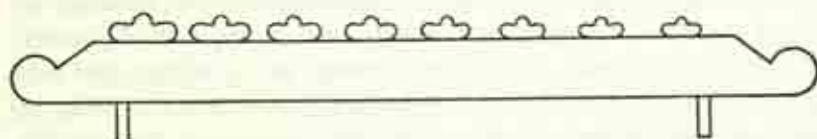


FIG. 20. — Moro gong instrument.

on a gong near the middle of the row, and so began to listen there for a keynote. By experimenting with these gongs in the absence of the natives I made the remarkable discovery that here too was a groping toward the pentatonic scale. The gongs are purchased from the Chinese and a person selecting them might not have a large number from which to choose; this might account for some deviation from true pitch. Dr Jenks and I wished to give a Moro an opportunity to select a set of gongs from the collection in the museum in order to see what his choice would be, but we were unable to carry out this plan, which would have been most interesting.

There were two of these instruments in the Samal Moro village. The tones of one were as follows (making allowance for lack of absolute correctness of pitch), placed in the key of G for convenience and clearness, the highest tones being at the player's left hand:

D B A G D C A G

The tones of the pentatonic scale of G would of course be: G A B D E G. Although C is present, the other tones are in most cases doubled. The melody ended on G.

The other instrument approached the minor mode and contained these tones:

B G C B A G[#] G[♯] C

In this case the melody ended on either A or C. There were two women who played this instrument; the younger woman ended her

melody with B C, accenting the C, while the elder woman with an unhappy face always ended hers B C A. I could detect the difference in the playing of these two without seeing the orchestra. Here, as among the Igorot singers, was a bewildering profusion of apparent melody, and I resolved to investigate more closely. It was of course useless to question them, even through an interpreter, so I sought Mr Lewis, the officer in charge of the village, and told him that I wanted to take a lesson on this instrument in order to find out the system underlying it. He summoned Simaya, the younger of the performers, who readily consented to instruct me. We went into the little theater and I sat beside her while she placed a "drumstick" in each of my hands, then guided my hands by holding them in hers. Imagine my astonishment when she taught me to play in four grades of difficulty! Here was another instance of music as an intelligently taught, practised, and cultivated art before there was the ability to compose and remember a melody. In the easiest grade I was taught to keep the right hand on one tone while the left moved about, the hands striking alternately, the right hand of course furnishing a kind of "pedal point" in the bass. When I had apparently gained her idea she released her hold of my hands and merrily motioned me to try alone. Sometimes she would take the sticks herself and play a little to show me, then handing them back for me to try alone. The second grade of difficulty transferred the repeated note to the left hand, or treble part. In the third grade *both* hands moved about, but the tones were of equal length. In the fourth grade there were subdivisions of the tones — rapid runs and little trills — the hands still striking alternately but with a degree of virtuosity that was paralyzing. I gave up in despair, especially as another Moro had begun banging on the big kettle-drums that hung over my head, and the lesson ended in much merriment. However, I had gained my point. The closest observation failed to detect any dissatisfaction on the part of my teacher with my improvisations as *melody*, and I felt confirmed in my opinion that her own work consisted of impromptu combinations of melodic phrases.

Mr Lewis gave me most cordial cooperation in my study of Moro music. He had been with these people in the islands for four

years and they had built a railroad under his direction. He said that he found them good laborers; but in answer to my question stated that he had never heard them sing, though they sometimes gave a kind of "A-hoy-ye," or call, when out in their fishing boats. I remarked that primitive people usually have *some* songs, and Mr Lewis called his "house man," asking him in Spanish whether the Moros have any songs. The prompt reply was that they have *many* songs.

Later Mr Lewis introduced me to Datto Fecundi—the only datto in the village. Mr Lewis explained my wish and the datto promised that some of his wives should sing for me at eight the next morning, before the crowds arrived. At the appointed hour Mr Lewis and myself were seated on the datto's bamboo porch, but the favorite wives were reluctant to perform. It required much patience and a great deal of talking to persuade them. Beside me sat a little woman with dark eyes and whimsical face; she sat curled up, with her back to the group and her elbows on the railing, looking out across the little lagoon. Suddenly she began to sing. Her song was a wild sweet melody with long passionate cadences and the prolonged vowel syllables that characterize the music of the seafolk. When it was finished she dropped her head with its tumbled black hair upon her folded arms. I waited breathlessly. Soon she raised her head and sang again, more sweetly than before, seeming to look beyond the little lagoon to the broad waters of her island home. It was most fascinating music! I had brought a box of chocolates and under their encouragement the situation became less strained, another "favorite wife" joining the first in a series of duets. When the little concert was finished I asked some questions through an interpreter and was told that these were all love songs, and were "made up as they go along—always different." I was told further that the best musician was she who could "make up music" the best. They said that at home these love songs often would be sung by a man and a woman. The use of the love songs freely by the women suggests quite a development of music as a cultivated art, for do not our own women-singers use the love songs in their recitals? Yet the Moro and the Negrito songs were primarily an expression of emotion by means of improvised

music, and in each instance the manner of life was reflected in the song, the Negrito's being a suggestion of the bird notes of the mountain, while the Moro's love song echoed the roll of the sea. I wish I knew whether the Igorot in the mechanical rhythm of his work-a-day life sings of love!

Next to the Samal Moro village was that of the Lanao, or Lake Moro, who live inland; these people are much fiercer than their sea-faring relatives. Five sultans of this tribe were in St Louis and each brought only a few wives, while none of the dattos, or subchiefs, were brought. The village was not open to the public, as the only man who could control these wild people had been called east by a death in his family. Dr Jenks took me into the village. We were the only white people there, but were perfectly safe, as the sultans are devoted to Dr Jenks; he told me, however, that they had tried twice to kill their keeper since leaving the Islands and that in the whole world there is probably no tribe more wicked and barbarous than these people. Yet their faces were especially smiling, and they certainly looked happier than their gentler kin. I noticed the same thing in regard to Antonio, the Igorot whose tattooing showed that he had chopped off many heads. He was nearly always smiling cheerfully, but it made me shiver when he looked in my direction.

The five sultans were most obsequious when Dr Jenks introduced me to each in turn. He explained my desire to hear their music, and they replied that the big gongs were all in the house where a slave wife had died the day before and where they had been having funeral music, but that the instruments in question should be brought to the theater as soon as possible.

Meantime Dr Jenks and I inspected the xylophone in the theater, which resembled those in the Samal Moro village, but contained nine gongs instead of eight and had the highest tones at the player's right instead of at his left hand. The gongs were more nearly true to pitch and to the pentatonic scale than the others, but the *second* of the scale was in the upper octave. This again may have been due to a scarcity of material from which to select the set. These were the intervals of the Lanao Moro instrument:

- G A^b C E G A C D

The pentatonic scale on C would of course comprise the tones C D E G A C.

At last the large gongs arrived and the sultans said that I should first hear a song. A woman seated herself near one of the doors of the theater. Her head was covered by a yellow silk scarf and she held the end of it before her face as she sang. The music was different from any heard previously, and more nearly resembled the long-drawn-out chanting of some ceremony, having a steady swing and more measured cadence. Suddenly two Moro warriors sprang forward from the other doors with a shriek such as I hope I may never hear again; it was like the shriek of a wild animal in a rage. They came together with a bang, clashing their shields and fighting until one shield was shattered. I was told that this too was an improvised love-song, and I infer that the course of true love in Mindanao is indeed strenuous.

The orchestral music was similar to that in the Samal Moro village, but the melody of the xylophone was more fiercely aggressive and there was no mistaking the fact that it was in the major key.

Both the Moro villages are Mohammedan, and I believe that longer study would have revealed interesting native music in connection with their religious ceremonials—for instance: The dead slave-wife, Dodoa, was buried in Calvary cemetery, St Louis, and at her grave the Moros chanted a recital of the virtues of the dead woman and a prayer to Allah. Knowing their limitations, it is reasonable to suppose that the music of this chant was improvised and that a correct record of it would throw light on the question of the sequence of tones intuitively followed in the expression of this emotion. It would be interesting to compare such a record with the *Undas* of the Negrito and the funeral wail of the American Indian.

The Bagobos had not arrived when I was in St Louis, so I was unable to include them in my study. This was a matter of regret to me, as they are said to be especially musical.

The music of the Visayans was pleasing, but showed Spanish influence too strongly to be of interest in connection with my present studies.

The native music of the Filipinos will soon pass away. Beyond the bamboo paling of the Igorot village were the white tents of the Philippine constabulary, and there at set of sun a band of Filipinos played our own national anthem, while hundreds of Filipinos in khaki saluted the American flag as it was slowly lowered. So the sunset gun is measuring the days until all the Filipino music shall be merged at last in The Star-spangled Banner.

RED WING,

MINNESOTA.



PRIEST OF QUETZALCOATL PERFORMING A PENITENTIAL RITE
OF DRAWING A STICK THROUGH HIS TONGUE. FROM TUXPAN

AN ANCIENT MEGALITH IN JALAPA, VERA CRUZ

By J. WALTER FEWKES

On my visit to Mexico in 1905¹ I saw in the court-yard of the Preparatory School at Jalapa an ancient sculptured stone of more than passing interest. I learned that this stone was presented to the school by Sr Teodoro Dehesa, Governor of Vera Cruz, and it is said to have been found near Tuxpan in that state.² Through the kindness of the Governor I obtained the photograph reproduced in the accompanying plate XXIX.

I did not make an exact measurement of this megalith, but the bas-relief figures on it are little less than four feet. It is made of soft, light gray stone, and is nearly rectangular in shape, but slightly broader at one end than at the other; it was evidently once buried in the ground about one-third its length. The edges and top are straight and smooth. The general shape of the megalith and the figures thereon suggest that it was one of a series of upright stones standing in row, like those on each end of the stairway of the "palace" at Palenque. The stone sculpturing on one face is an excellent specimen of the artistic work of the eastern or coast peoples of aboriginal Mexico. In some, perhaps in most, particulars, the technique is Aztec, but in others more Huastec or Maya.

I am acquainted with two published figures of the Jalapa megalith. One of those is given by Mrs Nuttall in her interesting article, "A Penitential Rite of the Ancient Mexicans,"³ in which she points out that the human figure so conspicuous upon its face probably represents a priest making the sacrifice of drawing blood from his tongue by piercing it with a sharpened stick. In the same paper (p. 4) Mrs Nuttall refers to the megalith in question as follows:

According to Sahagun the priests fasted during the four days preceding this festival and at noon blew conch-shells, flutes, and whistles, and then passed

¹ This visit was made possible by an allotment of funds by the Smithsonian Institution.

² According to Señor Leopoldo Batres it was found at Quilozintla, Vera Cruz.

³ *Archaeological and Ethnological Papers of the Peabody Museum*, 1, no. 7, fig. 1.

slender twigs or sticks through their tongues. An interesting bas-relief preserved at Jalapa illustrates this painful rite, the most graphic description of which is given by Friar Mendieta in his *Historia Ecclesiastica Indiana* (cap. xvii).

A second figure of the megalith, taken from the same photographic negative as the one here reproduced, was published by Señor Leopoldo Batres in 1905.¹ The manuscript of the present paper had been sent to the printer and the plate that accompanies it printed before I knew of Señor Batres' article. In his brief description of the megalith, called by him the "Estela de Quilozintla," Señor Batres identifies the human figure as the god Ehecatl, and the reptile as Quetzalcoatl, the latter so placed as to receive the blood from the tongue of the former in a penitential rite.

Quotations from several older writers given by Mrs Nuttall leave no doubt of the validity of her interpretation of the action of the priest figured on the stone under consideration. It is more especially the object of this article to discuss and interpret these symbols of the man and the animal with a view to the identification of the supernatural being to which they refer.

The sculptor has cut in bas-relief on the surface of this stone two figures, one of which represents a human, the other a reptilian, being. It would appear from the almost identical symbolism on the heads of these two figures that one represents an anthropomorphic and the other a zoomorphic personation of the same conception — a supernatural being. In other words, the one, a priest, is making an offering to the other — a god personated by the reptile.

The figure of the priest appears to be standing on the body and tail of the symbolic animal which raises its head to his breast. Close comparison of the cephalic symbolism of these two figures reveals a suggestive similarity of the bonnet of the priest to the head of the reptile — a resemblance indicating that the figures are closely related. The natural interpretation of this relation is that the priest personates the same supernatural being as that symbolically represented by the reptile. The main part of the bonnet, exclusive of feather adjuncts, resembles the upper part of the head of the reptile near by. We detect a curved snout, which recalls the long nose of certain Mayan figures, a circular eye, and the line of the upper jaw at

¹La Lápida Arqueológica de Tepatlaxco-Orizaba, Mexico, 1905.

one end of which (that corresponding to the angle of the jaw) is a tooth curving backward. A similar curved tooth is repeated at the end of what appears to be a second parallel lip, in which the place for teeth is occupied by a row of circles, each with a central dot. An unusual appendage occupies the position on the rear of the head-dress near which one would naturally expect to find the ear. This is an incomplete circular disk with notched margin, from which hangs a curved body commonly represented in idols from the Vera Cruz region. The structure and significance of this will appear later in comparative studies of the same structure in the reptilian figure.

The association of a reptile and a priest wearing a bonnet with reptilian symbolism recalls figures of men and serpents in some of the Mayan codices. For instance, we find several leaves of the *Codex Cortesianus* given up to a series of pictures of serpents accompanied by men wearing helmet masks with a symbolism almost identical with the heads of the surrounding reptiles. These men are identified by Dr Schellhas as belonging to the group designated by him God B.¹ It is probable that they represent priests personating the same god that is represented zoomorphically by the accompanying serpent. Precisely in the same way the human figure on the Tuxpan megalith may represent a priest personating the same supernatural being as the adjacent reptilian monster.

Brief mention of certain common symbolic features in the two figures may be made before we consider their identification. The human figure naturally claims our attention first. Its left side is shown in the relief and the right leg is extended somewhat in advance of the left as if the person were walking. The most striking object connected with this figure is the sharpened stick grasped in the hands and drawn through the tongue. As before stated, the attitude of the figure is that of a priest drawing blood from his tongue, while the reptile before him evidently represents symbolically the being to which he is sacrificing. The priest is destitute of

¹ The majority of the figures in both Aztec and Mayan codices represent not gods, but priests personating supernatural beings. The artist who made them drew masked men he had seen in ceremonial dances, just as the Hopi make paintings of men in ceremonial paraphernalia personating their *kachinas*.

clothing with the exception of a breech-cloth, the ends of which hang from the belt in front. There are sandals on the feet, and between the legs a small mammal¹ and two circles which are cut in low relief. This is an Aztec figure and may refer to the date of the manufacture of the megalith or of the building of some pueblo in the neighborhood.

Above the head and before the face of the priest there is a row of circles bounded by raised bands similar to the ornamentation on the body of the reptile. This series of circles ends abruptly in the upper right-hand corner of the megalith, as if it were formerly continued on an adjoining stone when *in situ*. There is likewise a series of faintly incised figures on the surface of the megalith between the row of circles just referred to and its edge.

It would be instructive to find out whether this stone once stood in line with others, forming a series on the face of each of which were sculptured a priest and an accompanying reptile. If so, the resemblance to figures in the Codex Cortesianus would be even more striking.

The main characteristic of the human figure, the one which reveals the identity of his symbolism with that of the accompanying reptile, is an elaborate ceremonial bonnet with pendant feathers and other adjuncts. This object is tied to the head by a strap or band passing under the chin. From this bonnet a "trailer" made of feathers bound together extends down the back of the priest almost to his feet. To the top of the bonnet is attached, at the middle, a pointed object placed horizontally. This extends into two feathers fastened to the blunt or rear end. The perspective of the bundle of feathers called the trailer of the bonnet is more or less faulty, a rear view being shown instead of a side view as would be more natural when seen laterally.

This may be a good point at which to say something concerning the decorations on the legs and arms of the priest. It is not clear to me whether these ornamentations should be regarded as body painting or tattooing, but they are probably intended for one or the other rather than for clothing. The designs represented are not especially noteworthy, but it is interesting to observe that circular

¹Señor Batres suggests that the animal is an ocelot.

figures and dots appear at the joints and elbow, and that these are repeated at the waist, knees, and ankles as well as at the wrists. In other words, wherever there are joints, circles are represented. This may be a symbolic way of depicting the articulations at these places, in which event the circles may be regarded as parallel with the figures of eyes found in similar positions in drawings made by the Northwest Coast Indians.

As the figure of the animal is represented with a leg, it is evidently a lizard-like being rather than a serpent. This leg rises from the center of a disk notched at the periphery, like that on the bonnet of the priest, but relatively smaller. It takes the place of the curved body that hangs down at the side of the neck in the case of the bonnet. The leg is provided with curved claws which grasp an unknown body.

The head and mouth of this animal are especially reptilian. The lower jaw curves outward and downward and is armed with rows of rectangular teeth. A tongue projects beyond the mouth opening. The upper jaw likewise has teeth rectangular in profile and curving upward. At its extremity it is armed with a single tooth projecting outward. There is a curved appendage, probably dental, extending backward at the angle of the jaw, recalling a structure in the same position in the bonnet worn by the priest. The body of the reptile is serpentine, with the surface marked by a row of circles and curved bodies on the margin, representing curled ends of feathers.

The body terminates in a circle from which extend parallel lines representing feathers. Below the horizontal part of the serpent's body there are several thorns similar to those in the hands of figures of priests in some of the codices, performing the penitential rite.

The significant association of the anthropomorphic and zoomorphic figures on this megalith recalls that of certain drawings ascribed to the "God B" and the serpent in the *Codex Cortesianus*. This parallelism is emphasized by an examination and comparison of a structure in the mouth, common to both. I refer to the "tooth" at the angle of the jaw. This backward-pointing organ is one of the distinguishing characters of the mask and cephaloglyph of the "God B" in the codices, especially in the *Cortesianus-Troano*. It

is found also in the serpent figures that accompany the "God B" in these codices.

In the figures of both priest and reptile on the Tuxpan megalith a similar backward-curving object occurs in the angle of the jaw; the possession of this organ increases my belief that the figure in bas-relief on the stone corresponds to that called in the codices the "God B." If this identification is reliable, several interesting questions suggest themselves. There is little doubt that the megalith was carved by Totonac or Huastec sculptors, and its technique shows marked affiliation with work of the Maya, who were linguistically allied to those peoples. It has little in common with Aztec work, so pronounced in the Teayo ruin, except in the animal figure between the feet. The similarity of the figures in bas-relief to some of those representing the "God B" of the Codex Cortesianus-Troano would seem to indicate that this codex is Totonac or Huastec.

There is considerable resemblance also between the figure of the reptile cut on the face of the megalith and certain reptiles in the Codex Nuttall. Seler¹ has brought together those to which I refer, and others of similar form, and concludes that they represent Xiuhcoatl, the Fire Snake. This would lead us of course to regard the figure of the megalith as Aztec rather than as Huastec. I am inclined to believe that the reptilian monster on the megalith represents a sky god allied to Quetzalcoatl and that the human figure represents a priest of that god. One objection to the identification of the human figure as a priest of Xiucutli, or Xiuhcoatl, is the form of the gorget or ornament suspended from the neck and hanging on the breast. The megalith figure bears what is apparently the cross-section of a conch-shell, the recognized symbol of the God of Air, Quetzalcoatl. The figures identified by Dr Seler as Xiucutli have on the breast in place of this gorget another of rectangular form with terraced extensions at each corner. While the head of the reptile on the same stone closely resembles figures of Xiuhcoatl, the Fire Serpent of Seler, the bonnet of the priest is more like known

¹ *Das Pulquegefäß der Bilmek'schen Sammlung*. Gesammelte Abhandl., Bd. II, p. 937.

figures of the head of Quetzalcoatl. It may be that this fact and the possibility that both reptile and priest personate the same god have some importance in showing the identity of Quetzalcoatl and Xiuhcoatl or that Xiuhcoatl is but another attributal name of the former god. I fail to find the characteristic symbolism of Ehecatl in this serpent figure.

In briefly summing up the results of my studies of this megalith, I find that the two figures on it are connected, one representing a priest performing a rite of blood-letting from the tongue, the other a zoomorphic personation of a supernatural being. Both represent the same god. The similarity of the bonnet of the priest and the head of the serpent to those of the priest with the helmet of the "God B" and the serpentine personation of the same, together with their association in both cases, shows some connection or implies that the human figure on the Tuxpan megalith represents a priest personating Schellhas' "God B," generally called Quetzalcoatl.

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REMAINS OF PREHISTORIC MAN IN THE DAKOTAS¹

By HENRY MONTGOMERY

The work of exploration of the remains of prehistoric man in Dakota Territory was begun by me in the summer of 1883, and since then I have completed the exploration of 40 of the ancient artificial mounds in that region, have inspected the exterior of very many others, and have examined numerous specimens obtained from the latter. Twenty-four of the mounds explored were in Ramsey county, 8 were in Benson county, 6 in Walsh county, and 2 in Grand Forks county. Others studied to some extent were in these and other counties of what is now North Dakota, and still others were on the Fort Sisseton reservation and elsewhere in South Dakota.

These mounds may be classified as follows:

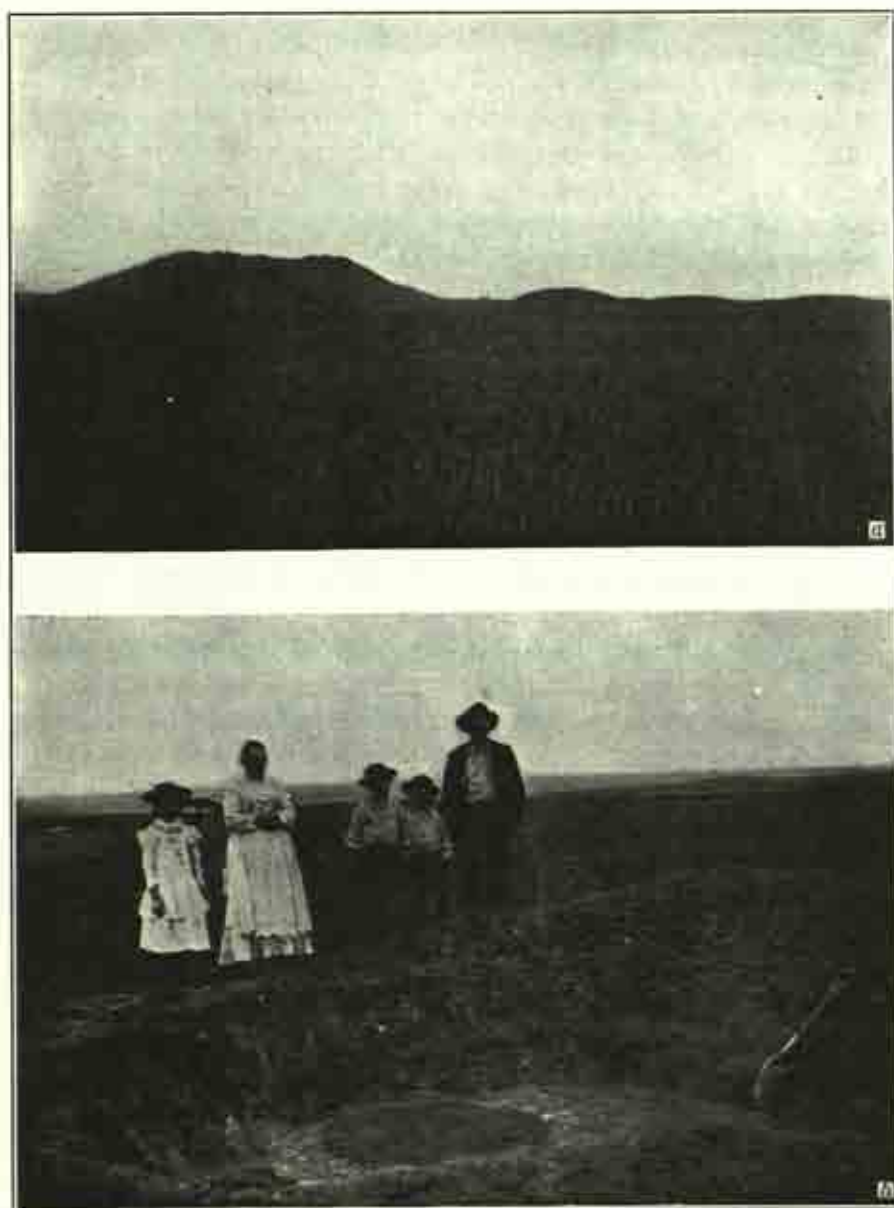
1. Burial mounds.
2. Ceremonial or feast mounds.
3. Beacon mounds.

There were 37 burial mounds, 2 probably ceremonial, and only 1 beacon mound.

1. *Burial Mounds: their Structure, Situation, and Contents.*—Of the burial mounds, or mounds of sepulture, there are two or more kinds, namely:

(A) The ordinary burial mound of most frequent occurrence, of which external views are shown in plate xxx, *a*. This consists of a circular, rounded, or conical heap of earth, mostly rich black soil from the prairie, clothed with grass and rising generally to a height of several feet above the surrounding land. The height ranges from a few inches to more than 12 feet, and the diameter from 30 to 90 feet. Doubtless these mounds were originally much higher, the winds and rains having reduced their height very considerably. There is good reason to believe that a large number of them have

¹ Read before the Anthropological Society of Washington, March 13, 1906.



MOUNDS IN NORTH DAKOTA

- a. View of field in Walsh county, showing four mounds in the distance. b. Burial pit after the removal of the mound and with the contents of the pit undisturbed.

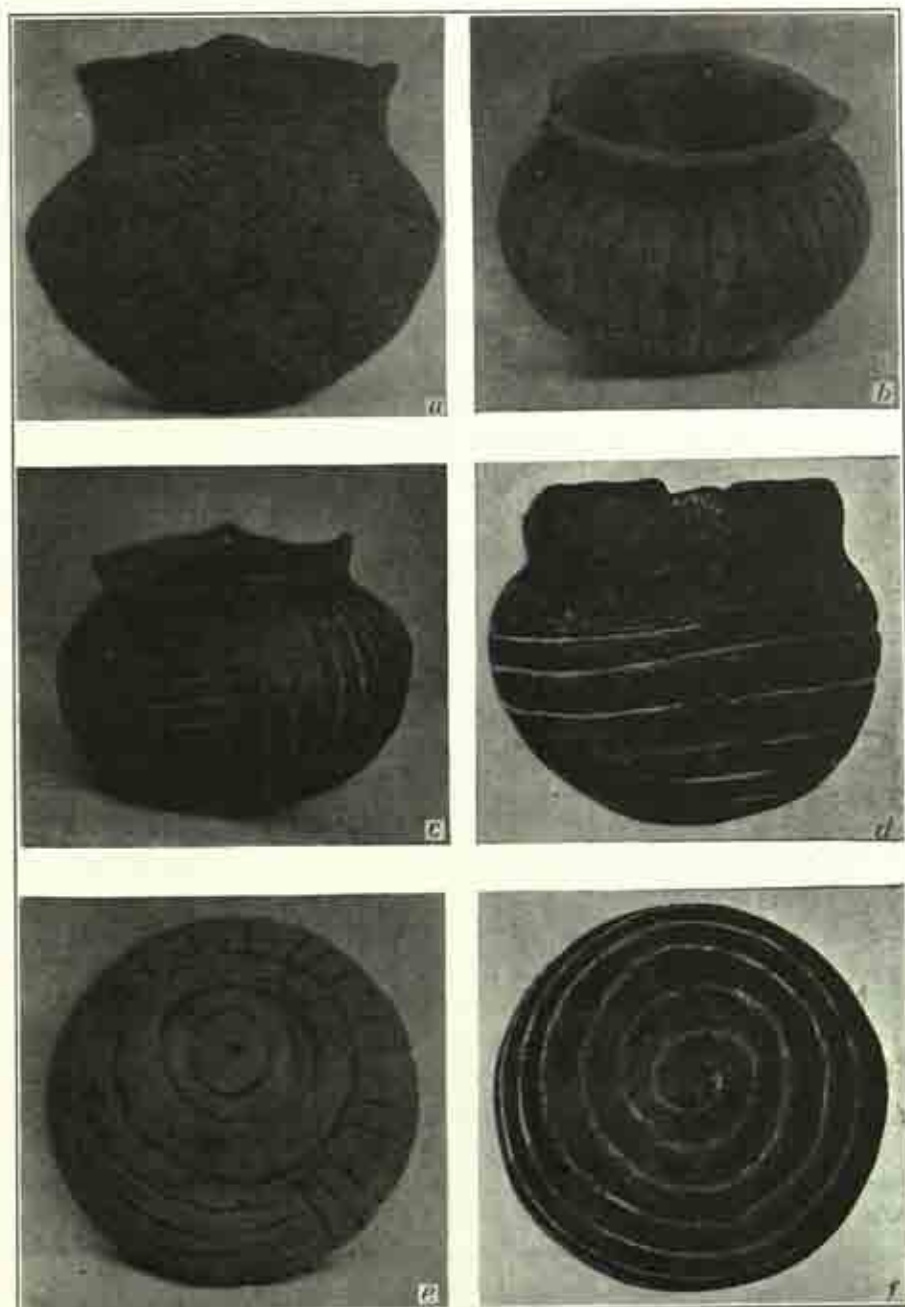
been worn down to the surrounding level, and therefore are not likely ever to be discovered. All burial mounds of class A examined bore evidence of having been blown or washed toward the southeast, as might be expected where the prevailing winds are from the northwest. In each such mound one or more burial pits occur, in which human skeletons and various implements, ornaments, and other articles are found. If but one burial pit occurs, it is nearly always centrally situated. If two or more pits occur in one mound they are all excentric in situation, and from a few inches to several feet distant one from another. The pit or burial chamber is circular. In only one case have I seen it vary from the cylindrical form, and in this instance it was merely a little irregular. I have never found one to be rectangular or square. It is a well-like excavation in the ground, having a calcareous bottom and wall, and sometimes also a calcareous covering consisting of a whitish-yellow layer an inch or two in thickness. The lining as well as the covering is a mixture of lime and clay. The bottom of the chamber was overspread with bark of some tree, often the elm; and upon this bark rested almost a foot of finely pulverized yellow clay, which in turn was surmounted by rich, black soil similar to that constituting the general soil of the region. The pit ranged from 3 feet to 7 feet 5 inches in diameter, the average being about $3\frac{1}{2}$ or 4 feet. Its depth ranged from 2 to 4 feet, while its bottom was often 6 or 8 feet or more below the summit of the tumulus. In my work of excavation I proceeded to dig the sod and earth from the surface of the mound to a depth of about one foot, over an area 15 feet in diameter, with the center of the mound for its center. Then another thickness of similar size was removed, and thus the depth of the excavation was increased foot by foot, always keeping a level floor in order that the situation of the burial chamber or chambers might be more readily determined. Wood was found from a foot to three feet down. This consisted of poles, the trunks of young trees, principally elm and oak, varying in diameter from 3 to 10 inches, charred at their ends and over their entire surfaces. When the yellow subsoil was reached it was carefully scraped off to the depth of two or three inches, when the pit or grave was at once perceived as a circular area of soft black soil surrounded by yellowish-white clay. This is shown in plate xxx, *b*,

which represents a mound on section 12, range 65, township 153, on the west side of Creel's bay, Devils lake, Ramsey county. This view was taken immediately after the location of the pit and before any of its contents had been disturbed. I then proceeded to remove the loose black earth, and soon came to the yellow clay, a human skeleton, an earthenware urn, a shell scoop or spoon, a birch-bark basket, a turtle-shell, and several shells of large Unios. The skeleton was generally found in a crouching posture, with the back against the wall and the face toward the center, the *ossa innominata* upon the tarsal bones, and the shoulders, head, and hands upon the knees. It occasionally happened that the weight of the overlying wood and earth had forced the skull and upper parts of the body forward or to one side, but the position in which the pelvic and leg bones and the lumbar and sacral vertebræ were found, in all cases determined the original position of the whole body. The utensils, ornaments, and trinkets were usually found beneath the skull and the chest. Occasionally, however, an urn was found in the upper part of the burial pit, and in one instance an urn containing decomposed twigs and leaves was found immediately above the pit.

The preservative properties of the yellow clay are more effectual than those of the black soil, and this perhaps may be a reason for the use of the former in the manner stated.

(B) The second kind of burial mound in several respects resembles the one just described, but differs in having no burial chambers and no wood, in the skeletons being greatly broken and defective, and in the bones being much scattered throughout the mound.

(c) There is perhaps a third variety of burial mound in this district. The principal characteristic by which it is distinguished from the second class (B) is the possession of a layer of yellow clay two or three inches thick, which extends through the greater part of the tumulus and seems to overlie human bones. This may correspond in some measure to the covering of the pit or to the pit itself, described in the first class (A). In this last class (c), however, there is no real chamber or excavation, and the layer of yellow clay is found two or three feet above the original surface of the ground.



POTTERY FROM NORTH DAKOTA

a. Urn of pottery; height, $2\frac{1}{4}$ in., greatest width, 3 in.; taken from burial pit in Ramsey county, July 25th, 1883. b. Urn of pottery, having holes in the rim; found in pit in Mound 7, Section 12, R. 65. c. Urn of pottery, with four holes in its rim. d, f. Side and bottom views of urn of pottery showing a continuous spiral groove; found in burial pit in Ramsey county, July, 1883. e. Under surface of urn of pottery from pit in Mound 7 on Section 12, R. 65.

All the burial mounds contain near the surface numerous bones of bison, deer, and other animals, which have been broken as if in the process of making use of the flesh as food.

2. *Ceremonial or Feast Mounds.* — These had no burial pits, but contained pieces of partially burnt bones of men and beasts.

3. *Beacon Mounds.* — One mound in Benson county consists largely of burnt clay.

The location, dimensions, and contents of a few of the mounds are here given :

MOUNDS IN RAMSEY COUNTY

These were situated on high ground on the north side of Devils lake, the surface of which is about 1,430 feet above the level of the sea.

Mounds on Section 13, Range 65, Township 153

Mound 1. — This mound was circular in form, 60 feet in diameter and 5 feet in height, but as it had been cultivated for a garden and a green-house its height and internal structure could not be ascertained with accuracy. The burial pits were only partially made out. Considerable quantities of wood and charcoal were unearthed, the wood consisting of poles charred on their surfaces and at their extremities. Besides these poles the following were taken from this mound :

(a) Fifteen human skeletons. Of these only a few were in good enough condition to admit of being removed. The antero-posterior diameter of one of the skulls found here measures 7.75 inches, and its transverse diameter 5.875 inches; hence the cranial index is 75.8 and the skull is mesocephalic.

(b) One urn or vase of pottery, in a perfect state of preservation. It is $3\frac{1}{4}$ inches high; its greatest width is $4\frac{1}{4}$ inches, while the diameter of its flaring-rimmed mouth is $3\frac{1}{4}$ inches. The mouth is circular and the external surface is ornamented by a continuous, winding groove extending ten times around the vessel from the rim to the center of the bottom, where it terminates in a cross. The material of which the urn is made appears to be fine-grained. This specimen was found close to a woman's skull. Indeed every

earthen vessel of this kind thus far discovered has been found with a skeleton having all the characters of that of a female.

(c) One copper socket for the handle of a knife. This has copper rivets and several rivet-holes. It is $4\frac{3}{4}$ inches in length, and is $1\frac{1}{4}$ inch wide at one end and $\frac{3}{4}$ inch wide at the other.

(d) Three stone pipes of different sizes, but similar in pattern and material. All are made of catlinite, often known as red pipe-stone, and all are straight bowls without stems.

(e) Two spear-heads made of a variety of quartz between agate and flint. These spear-heads are translucent and their workmanship is of high order. The smaller of the two is shown full size in plate XXXII, *a*. Its length is $5\frac{3}{16}$ inches and its greatest width $2\frac{5}{8}$ inches. It is deeply barbed at the base and serrated along the edges.

(f) Two shell scoops or spoons, made from *Unio* or freshwater mussel shells. The length of one of these is $4\frac{1}{8}$ inches and its width $2\frac{1}{2}$ inches; it is formed from the valve of the shell. It has a short handle cut upon it, and notches on the margin. It somewhat resembles the scoop commonly used by druggists.

(g) Several *Unio* valves without cutting or other ornamentation. The following were found near the top of the mound:

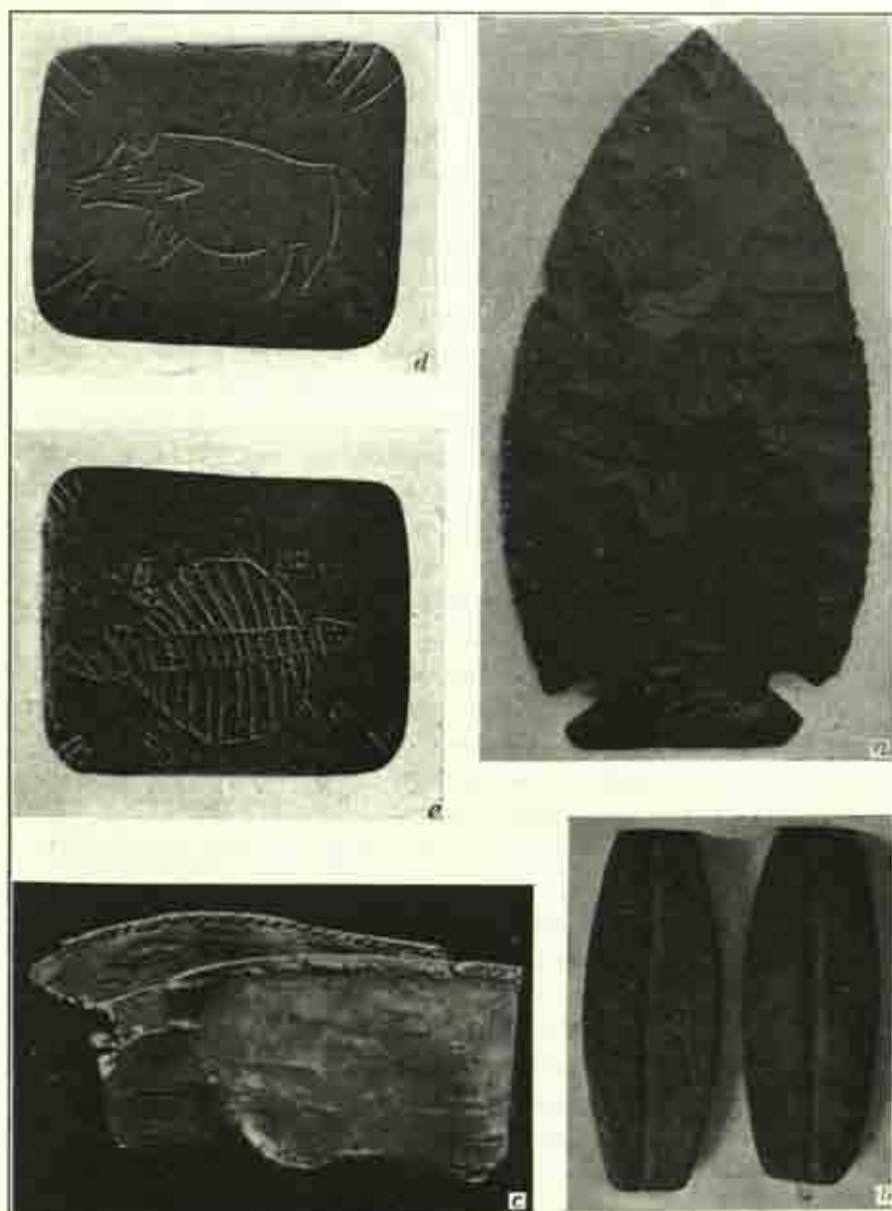
(h) One oblong gray sandstone, grooved deeply on one side, perhaps intended for use in sharpening bone awls, needles, and skewers.

(i) One round stone much like a concretion.

Mound 2.—The second mound on this section of land possessed a well-defined burial pit with only a few bones in it.

Mound 3.—The third mound was 40 feet in diameter and about 4 feet in height. It contained a well-defined pit 5 feet 8 inches in diameter and 2 feet 10 inches in depth. The total depth of the pit from the summit of the mound was 7 feet. The contents of this chamber were the fragments of an urn, apparently broken by a badger, one birch-bark basket, one *Unio* valve, and four human skulls in a poor state of preservation.

Mound 4.—The next mound on this section had a grave the bottom of which was six feet beneath the surface of the mound. It contained a small catlinite pipe (pl. XXXIII, *h*), also a bone fishing-spear with three tines (pl. XXXIV, *i*), and two human skeletons.



STONE OBJECTS AND BARK BASKET FROM NORTH DAKOTA

a. Spear-point of agate from mound in Ramsey county. b. Grooved sandstone arrow and needle sharpeners found near surface of mound. c. Birch-bark basket from burial pit. d, e. Carved animal figures on both sides of a flat piece of catlinite.

Mounds on Section 12, Range 65, Township 153

Mound 1 had a distinct pit containing one human skeleton, and a birch-bark basket with rows of holes for thread.

Mound 2 contained two burial pits about 15 inches apart. One of these was 4 feet in diameter, the other $4\frac{1}{2}$ feet. From them were taken several human skeletons, three broken pottery vessels, and three baskets of birch-bark showing rows of holes where stitches of some kind of thread had formerly been. Plate xxxii, *c*, shows one of these baskets, half its diameter.

Mound 3 measured 30 feet in diameter and 4 feet in height. Numerous charred poles were found from a foot to two feet beneath the surface. There was one circular chamber with a diameter of 3 feet and a depth of 2 feet 10 inches. The depth of the pit from the summit of the mound was more than 6 feet. This pit contained:

(*a*) One complete skeleton of a man upward of six feet in height. It was plainly in a crouching posture with the back against the wall. The cranial index is 78.4. In close proximity to this skeleton there were found the following:

(*b*) One flat piece of catlinite, or red pipestone, having the figure of an animal carved on each side (pl. xxxii, *d*, *e*). One of the carvings is probably intended to represent a beaver, and the carving on the other side of the stone represents a buffalo cow with open mouth, and having the "line of life" drawn from the mouth toward the heart.

(*c*) Two pieces of broken pottery urns.

(*d*) Two complete pearly shell rings ornamented with copper, and pieces of two similar pearl rings. Each ring measures $1\frac{3}{4}$ inch in entire width, and the width of the shell itself is three-sixteenths of an inch. The metal decoration is a thin, flattened piece of native copper, somewhat ribbon-shaped, half an inch in width and $1\frac{1}{8}$ inch in length, and wrapped around the ring at its thickest part.

(*e*) One shell spoon or scoop.

(*f*) One *Unio* shell.

(*g*) One univalve marine shell (*Marginella apicina*), perforated and probably intended for a pendant or bead.

(h) One tine of a deer's antler, perforated by an ellipsoid aperture.
(i) A piece of a large fossil Ammonite shell, a fossil plentiful in the bad-lands of South Dakota.

(j) There were also a complete human skull and some ribs in the same chamber, directly opposite the man's skeleton previously mentioned. These bones are probably those of a woman.

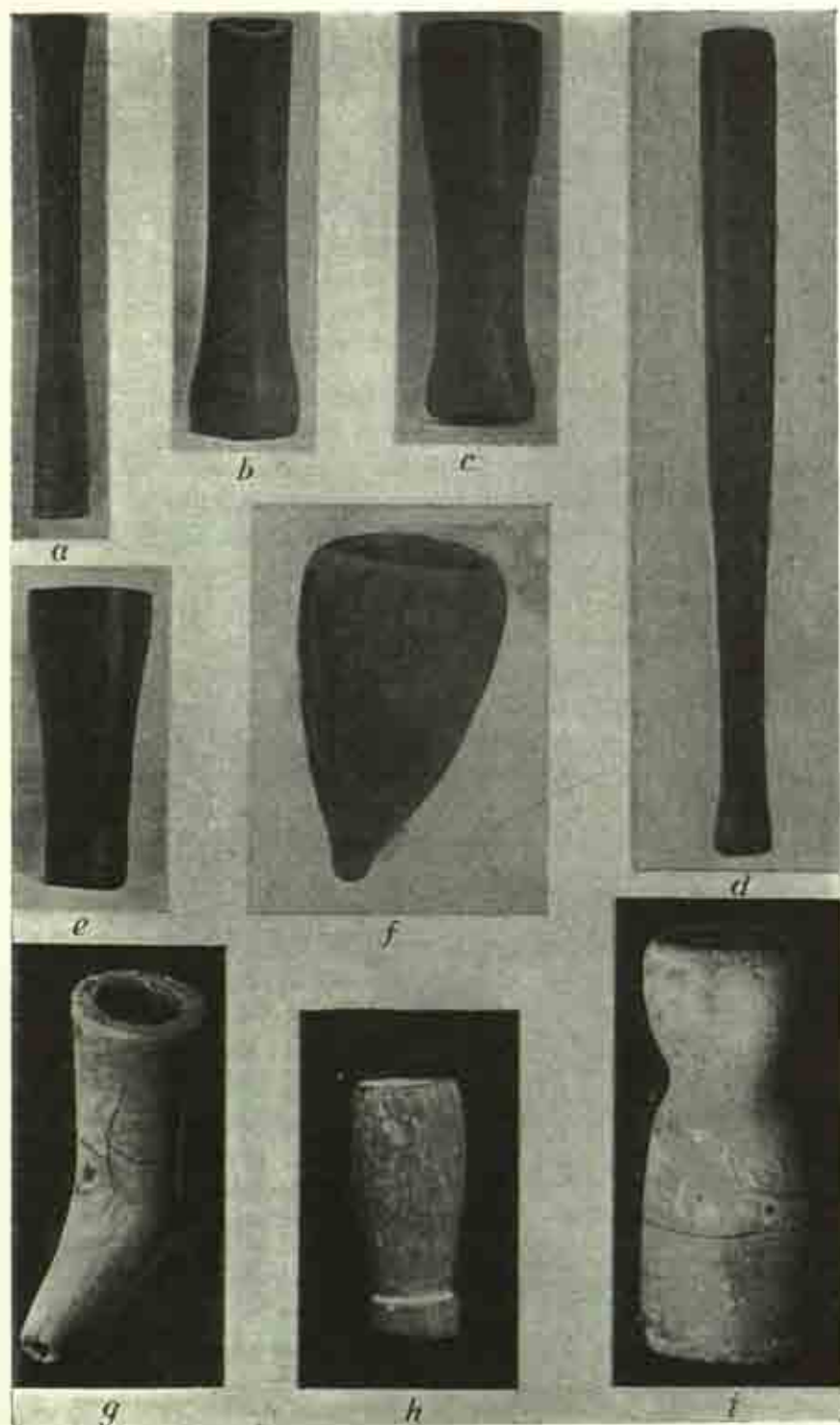
Mound 6.—This mound had a circular burial pit containing three human skeletons; one earthen urn having a continuous spiral groove running around it and terminating at the center of the under surface (pl. xxxi, d, f); one copper bead (pl. xxxiv, f); two catlinite pipes; three small bone needles; five large bone tubes, or beads, or perhaps pipe-stems, made from the wing-bones of a large bird, probably the pelican; one bone spear, with hooks or tines on one side; one horn implement, curiously cut and carved; one small perforated antler; one larger perforated antler; and a small heap of red paint. One of the stone tobacco pipes is $5\frac{1}{8}$ inches in length, and both exhibit distinct evidences of use in the smoking of tobacco, possibly the species *Nicotiana rusticum*.

Mound on Section 6, Range 64, Township 153

This mound contained charred poles at the usual depth, and one circular burial pit about $3\frac{1}{2}$ feet in diameter and 2 feet in depth. In the pit were two decomposed human skeletons; one broken bone article, probably a bracelet; and one clay pipe bowl, light gray in color, apparently baked, showing marks of use. This pipe was straight and somewhat like the catlinite pipes in general shape. It exhibits somewhat better workmanship than the large clay pipe found on Sully's hill near Fort Totten. (See pl. xxxiii, i).

Mounds on Section 19, Range 63, Township 155

Mound 1 contained no definite grave or pit and no wood, but it bore evidences of fire in the presence of a hard, nearly circular bed of ashes and charcoal about five feet in diameter. Several human bones were scattered throughout the mound, but none of them had been burnt. Among the things found in this mound may be mentioned two large beads made from the columella of a heavy marine shell, perhaps *Busycon* (pl. xxxiv, d).



PIPES FROM NORTH DAKOTA MOUNDS

a. Pipe-bowl of catlinite. *b*. Piece of catlinite pipe-bowl which had been cut off before burial. *c*. Catlinite pipe, $1\frac{1}{4}$ in. in length. *d*. Large bowl of catlinite pipe, $20\frac{1}{4}$ in. long; from Ramsey county. *e*. Catlinite pipe-bowl found with the piece of pipe shown in *b*. *f*. Pipe-bowl made from deer antler; length about 4 in. *g*. Clay pipe, bent; length 5 in.; found in burial pit in Benson county. *h*. Catlinite pipe-bowl, $1\frac{1}{4}$ in. long. *i*. Straight bowl of clay pipe; length $2\frac{1}{4}$ in.; found in burial pit in Ramsey county.

Mounds 2 and 3 were each about 30 feet in diameter and 2 feet high. They were connected by a short earthen ridge.

Mounds on Section 18, Range 63, Township 155

Two mounds on this section were connected by a wide ridge 110 feet in length. One of these mounds had a burial pit which contained human skeletons, and large marine shell beads made from the columella of a gasteropod shell, probably *Busycon perversum*.

MOUNDS IN BENSON COUNTY

Mounds on Range 65, Township 152

Mound 1 was on Sully's hill, immediately south of Devils lake, and about 145 feet above the level of the latter. It had charred wood, and two circular burial pits that had been excavated in shale. One pit contained four human skeletons, four perforated marine shell beads (pl. xxxiv, *g*), fifteen pearly shell pendants, and two large marine shell beads, similar to those found on Section 19, Range 63, previously described. The other pit contained nine human skeletons, greatly decomposed, and one large, curved, clay pipe about five inches in length (pl. xxxiii, *g*).

Mound 2 had two burial pits containing four human skeletons, greatly decomposed.

Mound 5 had at a depth of two feet a bed of ashes, charcoal, charred and partly burnt wood, and many charred and partially burnt bones of man and other animals. The greater part of a human skull, also burnt, was removed by me from this bed, as well as partly burnt jaws and skulls of bears and other animals. All these were in the ash bed, which was about six feet in diameter and occupied the center of the tumulus. No chamber or pit was found, although a thorough and extended exploration of the mound was made. It appeared to me that the contents of this mound indicated feasting of some kind—whether cannibalistic feasts or religious rites once held upon the mound, it may be difficult to determine. The mound externally had the shape and appearance of a typical burial mound.

Mounds on Range 64, Township 152

Mound 1 was circular in form, 30 feet in diameter and 5 feet in height; it occupied a conspicuous position on the south of Devils

lake. Sod and black soil to the depth of a foot were removed from the surface, and then red, burnt clay more than a foot in depth was discovered. This latter extended over a large part of the mound. A little charcoal was found, and a very small quantity of half-burnt wood; but there were no human remains. This I regarded as a beacon mound for the purpose of signaling by means of a bonfire. A long earthen ridge, 3 feet high and 3 feet wide, occurred within twelve feet of this tumulus, on the side remote from the lake.

Oblong or elongate mounds occurred also east of Fort Totten.

MOUNDS IN WALSH COUNTY

Mounds on Section 32, Range 55, Township 155

There were thirty-five mounds and four long ridges or embankments situated near the head of Forest river. Not all of these are indicated on the accompanying plan (figure 21). A noticeable feat-

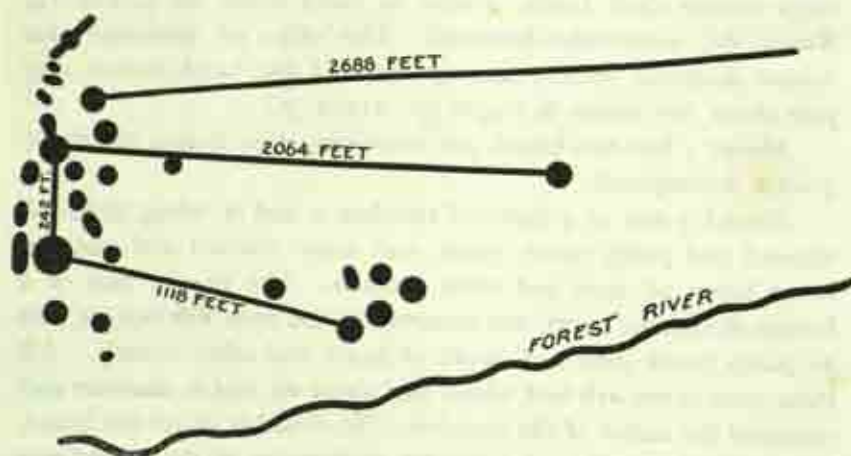
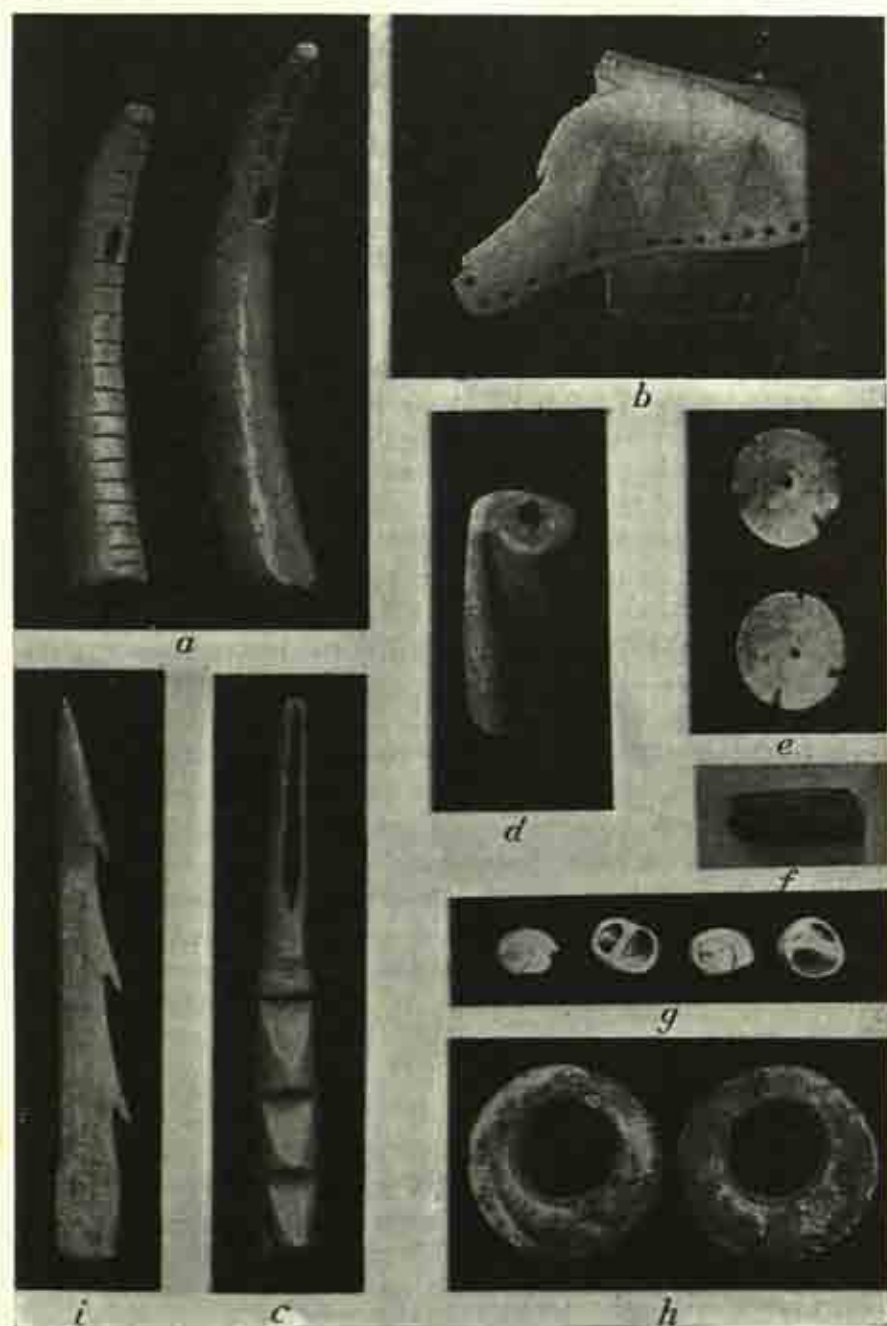


FIG. 21.— Plan of mounds and ridges near Forest river, Walsh county, North Dakota.

ure of these mounds was their great width, many of them ranging from 60 to 90 feet in diameter. A number of them were elongate. Another characteristic was the connection of some of these mounds by long low ridges or embankments. Some of the latter were of great length, being respectively 1,118 feet, 2,064 feet, and 2,688 feet long. The ridges ran in a direct line to the center of the



OBJECTS OF ANTLER, BONE, SHELL, AND COPPER, FROM NORTH DAKOTA MOUNDS

a. Deer antler tines, showing perforations and notches. *b.* Bone anklet, somewhat broken, but showing entire length in front. *c.* Carved tine of a deer's antler. *d.* Bead made from the columella of a marine shell. *e.* Pearly shell buttons or ornaments, perforated and notched; found with the anklet shown in *b.* *f.* Flat piece of copper coiled into a bead. *g.* Small marine shells perforated by grinding. *h.* Pearly shell rings, probably a portion of a necklace. *i.* Bone fishing spear.

mound in the case of all the five mounds considered. Similar but shorter connecting ridges occurred in Benson and Ramsey counties.

Mound 1 had a diameter of 90 feet and a height of 12 feet. A thin layer of yellow clay was discovered four or five feet beneath the surface; this covered an area twenty feet in diameter. Of about a dozen human skeletons only three were in condition to be removed. In addition to these there were twenty-two pearly shell rings with one oblong piece, four beads of a heavy marine shell, two large birch-bark baskets, one pipe made from a large antler or bony horn and somewhat pear-shaped, and a small heap of sticky clay, soapstone, and red ocher. Two of the rings are shown in plate xxxiv, *h*; they probably formed part of a necklace.

Similar oblong shell pieces were found in two pits in the mounds in Benson county. The horn pipe is represented in plate xxxiii, *f*.

Mound 2 was connected with Mound 1 by a ridge or embankment 242 feet long and 14 feet wide. It was connected with another mound also by a ridge 2,064 feet long and 12 feet wide. The ridges were nearly 3 feet high when first observed by the writer in 1883, but tillage had reduced their height to about 15 inches six years later.

Mound 5 contained charred wood and two burial pits. The latter were each about 4 feet in diameter and $2\frac{1}{2}$ feet in depth. The bottom of each pit was about $7\frac{1}{2}$ feet below the mound's summit; and the pits were about 9 inches apart. One of them contained four human skeletons, a heap of red ocher more than a pound in weight, and a copper article. The other pit had bark covering the bottom, and contained nine human skeletons, one marine shell bead, and a perforated antler.

MOUNDS IN GRAND FORKS COUNTY

Mounds on Range 50, Township 151

Mound 1, in the city of Grand Forks and on the left bank of Red river, when first seen by the Hon. M. L. McCormack in 1870 was twelve feet high; but after many years of cultivation its height became reduced to about six feet in 1888, when I undertook its exploration. Its diameter was seventy-five feet. No burial pit or wood was found, but it contained bones representing twelve human

skeletons, overlaid with two inches of yellow clay. As the owner desired the soil of this mound for the improvement of a neighboring lawn, under the direction of the writer the mound was completely removed and it yielded more than six hundred two-horse wagon loads of black soil.

In Roberts, Brown, Marshall, and other counties of South Dakota there have been numerous earth tumuli very similar to those of Ramsey, Walsh, and other northern counties.

When the military post Fort Sisseton existed in South Dakota upward of forty tumuli were counted within a few miles thereof. They occurred in groups of four to seven, situated upon small natural elevations. Their average diameter was about forty-five feet, and the human skulls and other objects which the writer has seen taken from them bore close resemblance to those taken from the tumuli previously described.

The foregoing are examples of the mounds of the Northwest. They show considerable care and intelligence on the part of those who reared them. By means of wooden, stone, and bone implements their builders succeeded in digging smooth-walled, regularly-formed circular graves, and in interring their dead in a manner much better calculated to preserve indefinitely the bodies and their accompaniments than the methods practised by many civilized peoples at the present time. The interior of the mounds was extremely dry in every instance; this was due to the mode of structure and partly also to the climate. A striking feature to be observed here is the uniformity in the structure of many of the mounds.

Measurements of many crania show the mesocephalic index.

The builders of the mounds procured the copper from Michigan or its vicinity, and the catlinite from Minnesota. They obtained some of the shells from the Gulf of Mexico or the Pacific ocean, probably through trade, and the remaining shells were taken from the rivers. The bark of the birch tree was transported one hundred or two hundred miles. The catlinite pipes are all of one shape, straight and stemless. Some of the cut pieces of hollow wing-bones of the larger birds may have served as stems. The clay pipes are of two forms, straight and curved. These and the antler

pipes seem to have been fewer in number than those made of catlinite. The pottery is confined to urns; these were fairly plentiful, however, and they appear to have been all or nearly all in perfect condition at the time of their interment. It is worthy of note that no pottery, broken or otherwise, was found upon the surface of the ground.

Both in their pottery and in their mode of burial the prehistoric mound-builders of the Dakotas differed very widely from the prehistoric people of Utah and the Southwest. That they were akin in culture to the mound-builders of the Mississippi valley there can be no doubt; yet they differed from them in some respects. In their pottery, as pointed out by Professor Holmes, and in their straight tubular pipes, they possessed types peculiar to themselves. They also occasionally reared elongated mounds and they connected some of their tumuli by very long earthen ridges.

THE MUSEUM,

UNIVERSITY OF TORONTO.

THE DIALECTIC DIVISIONS OF THE MOQUELUMNAN
FAMILY IN RELATION TO THE INTERNAL
DIFFERENTIATION OF THE OTHER LIN-
GUISTIC FAMILIES OF CALIFORNIA

By A. L. KROEBER

As a linguistic area California is noted for the number of its distinct stocks or families. With a few doubtful exceptions these families stand practically as they were originally determined, and the most recent investigations as yet give but little indication that their number, which is above twenty, will be materially reduced through the discovery of identities resulting from deeper study.

As to the number and nature of the subdivisions of these families there is however still much confusion. Comparatively abundant material in the form of vocabularies has been extant for many years, but the character of this material is such as to give rise to as many doubts as positive determinations. The vocabularies were collected at different places and at different times by various observers, many of them untrained, using the crudest orthographies, and at times very imperfectly acquainted with the modes of life and the ideas that shape and condition the vocabulary of any people. In many cases it is therefore not impossible that dissimilar vocabularies represented similar or even identical dialects. Instances of this sort are not lacking, as is witnessed by the several Wishosk or Wiyot vocabularies, which are only interpretations of one undifferentiated language. On the other hand, until direct evidence has been brought to the contrary, it is always possible that the dissimilar word-lists represent dialects that are actually different. Between these two possibilities there is little room for any certainty in each case until more satisfactory information has become available.

On the one hand there has been a tendency among scholars not personally acquainted with the native languages of California, to regard the families of the state, which in their territorial extent and

the number of individuals comprised by them are often more nearly the equivalent of the language or dialect elsewhere, as the representatives of such less fundamental divisions, which through peculiarities of culture or environment have in California become differentiated into distinct stocks. Following out this view it is tacitly assumed that the California families show no noteworthy internal differentiations, and that the total number of dialects occurring in the state is virtually summed up by the number of linguistic families. On the other hand the diversity in point of families, the apparent differences between published vocabularies of the same family, as well as general statements by observers who have made no linguistic records, have given rise to the idea that the diversity of families is only indicative of a more general and much greater diversity of speech. According to this view the families are subdivided into languages, and these into dialects, making the total of varying forms of speech in the state an enormous number. Bearing on this question, the present paper summarizes the results of recent study of several California families, with especial reference to conditions existing in one of their number — the Moquelumnan — that is among the least known, and with a view to determining as far as is possible at present the nature and degree of the internal or dialectic differentiation of families throughout the state.

The Maidu, who adjoin the Moquelumnan people on the north, according to Professor R. B. Dixon speak three well-marked dialects or languages, which he has named northeastern, northwestern, and southern. Within each of these three dialects local differentiations are very slight. For exact knowledge of the degree of difference between the three dialects, and of such minor variations as there may be within each, it will be necessary to await the publication of the results of Professor Dixon's linguistic investigations.

The Shasta and Achomawi of northeastern California have recently been united by Professor Dixon into a single family.¹ Within this family he recognizes six subdivisions, several of them on the verge of extinction and surviving in only a partial state. Two of these divisions fall within the limits of the former Achomawi

¹ See *American Anthropologist*, 1905, VII, 213.

and four within the former Shasta family. The brief vocabularies which he has published in support of his unification show all six subdivisions to be so markedly different from one another as to constitute true languages. According to Professor Dixon's personal statement, however, none of these six languages appears to have been appreciably differentiated into dialects.

In northwestern California are situated several families of unusually small territorial extent: the Yurok, Karok, Wishosk, and Chimariko. The principal body of the Yurok, occupying all the territory along the Klamath and part of that on the coast, speak a uniform dialect. In the strip of coast extending southward from the mouth of the Klamath there are three dialects, at Gold Bluff, Orick, and Trinidad, successively more divergent from the principal form of Yurok speech. The differences are, however, not very great, and even the Trinidad dialect was intelligible to the river Yurok. The Karok possessed a uniform dialect over the greater part of their territory. Those in the north about Happy Camp are said to have spoken a quite distinct dialect, which does not appear even to have been recorded. This dialect is said to have been at least partly unintelligible to the main body of the Karok, and must thus be regarded as constituting a separate language within the family. Nothing is said by the Indians of any intermediate forms of speech connecting the two languages. The Chimariko, who were a small body of people, spoke only one dialect. The same is true of the Wishosk, who, though probably more numerous, also occupied a restricted territory.

As to the Athabascan dialects of northwestern California available information is lacking. Professor P. E. Goddard, who has made a special study of these languages, groups the Hupa and a few of the neighboring Indians into a dialectic division more or less divergent from the remaining dialects.

Southward of this region, in and about Mendocino county, are the Yuki, whose speech has four principal forms. In a detached territory in the south are the Wappo, who apparently have been separated from the other Yuki for a long period, as their language is very distinct. They are aware of many similarities existing between their speech and the Yuki proper, but cannot understand

the latter. The Wappo themselves distinguish four dialects of their language, but Mr S. A. Barrett, who has carefully examined these dialects, fails to find any appreciable difference between them.

The main body of the Yuki speak three dialects: that of the Yuki proper, the adjacent Huchnom, and the coast Yuki. The coast Yuki are separated from the Yuki proper by Athabascans, and their dialect has the appearance of being a comparatively recent but rapidly diverging offshoot from that of the Yuki. Within the Yuki proper there are several minor dialectic variations the degree of which has not been determined, though it does not appear to be considerable.

Adjoining the Yuki on the south are the Pomo, whose dialects have been carefully determined by Mr S. A. Barrett. He has found seven of these dialects, which differ to such a degree in the forms of many of their words, and show distinct radicals for so many other words, that they should perhaps be considered languages rather than dialects. With the exception of one slight sub-dialect he finds no diversification of any of these seven languages. This is the more noteworthy as a number of distinct villages or political units were comprised under each language, and as several of the languages extended over territories of quite diverse environment, such as the coast and the interior. Mr Barrett's study was made with the special purpose of determining the total amount of dialectic variation existing within the family, and has been exhaustive. While his results cannot be expected to apply to all other families of the state, they are no doubt indicative of conditions existing in a number of them.

Among the Wintun no such systematic studies have been made as among most of the families heretofore enumerated. Partial investigations however reveal three well-marked groups. The central one of these occupies very nearly the territory covered by Glenn and Tehama counties; the other two occupy all the Wintun area respectively to the north and south. It does not appear that there were any considerable differentiations within each of these three dialects or languages.

The Washo, who, though primarily a Nevada people, occupied a limited territory in east central California, are said by themselves to have spoken one language without dialectic modifications.

On reviewing the information thus available as to the northern part of the state, it will be seen that the internal differentiation of the families is much less than has often been assumed. Several families are without dialects and none show more than six or eight. It is especially noteworthy that in most cases the dialects are on the one hand quite sharply distinct from one another, and on the other show but little or no internal variation. The statements frequently made as to the change of native languages encountered every few miles as one travels in California, with a constant gradual increase of differences, are thus on the whole unfounded so far as northern California is concerned.

In the central and southern parts of the state a smaller number of families occupy a larger territory. In several of these a greater number of dialects occur than in any family of northern California. Several stocks are so much reduced in numbers that it is doubtful whether the total number of their dialects and the degree of similarity and dissimilarity of these can be ascertained.

This is the case among the Costanoan stock, which inhabited the coast region between San Francisco and Monterey. Vocabularies have been published or procured from the Indians at the seven Spanish missions in this territory, which show that distinct dialects were spoken at each of these places. There is every indication that the total number of dialects in the family was larger. The information that there is or that can still be obtained however represents only points or isolated limited portions of an area, so that the exact determination of the dialectic groups of the stock and of their subdivisions cannot be attempted.

The Esselen family, which consisted of a small number of people inhabiting a restricted territory on the coast south of Monterey, is now extinct. There is nothing to show that this language was dialectically modified.

The Salinan family, south of the Costanoan and Esselen, is also very little known. The native speech at the two missions in Salinan territory, San Miguel and San Antonio, was different. The two dialects could not have been altogether mutually intelligible. There is nothing to indicate that there were any other Salinan dialects, but on the other hand it cannot be stated positively that such other dialects were lacking.

The Chumash, the next family southward along the coast, possessed a considerable number of dialects. Five of these are known, those of San Luis Obispo, Santa Inez, Santa Barbara, San Buenaventura, and Santa Cruz island. The San Luis Obispo form of speech was very different from all the others, and must have constituted a separate language. There is every indication that the total number of Chumash dialects was greater than the number of those known, and it would probably be no exaggeration to say that there were ten or more. The precise interrelations and grouping of these are undetermined.

South of the Chumash the coast and considerable areas inland are held by Indians of the Shoshonean and Yuman families, both of which are principally extra-Californian. Both families show considerable modifications within the state. Among the Yuman people, for instance, the speech of the Mohave and Yuma of the Colorado river is distinct from that of the Diegueño and other groups of the coast and interior, but the degree of difference between the several dialects existing within each of these two divisions, and their relation to other divisions of the family, have not been exactly determined. The Shoshonean languages of California were considerably diversified, evidently to a much greater degree than the Shoshonean languages spoken elsewhere. Of eight principal dialectic groups or branches into which it is possible at present to classify the Shoshonean family, four are confined to California, while two others occur both within and without the state. At least part and perhaps all of these dialectic groups are again differentiated. Thus the southernmost group comprises the Luiseño, Agua Caliente, and Cahuilla languages, which are nearly unintelligible to one another, besides the dialects of San Juan Capistrano and San Jacinto. No complete investigation of the Shoshonean dialects of California has however been made, so that it is impossible to state the amount of diversity within the several dialectic groups or the total number of dialects.

The Yokuts family, which occupied the territory immediately south of the Moquelumnan stock, differed from the majority of the families of California in that its members were not socially and politically organized into village units but into small tribes. What

is even more distinctive is that each of these tribes, of which there were at least forty, possessed a dialect of its own. There appears to have been no exception to this condition. The dialects differed both in the forms of certain words and more particularly in frequently using different words to express the same idea. Within certain related groups of dialects the differences were however not extensive. There were six such groups. Within each group there was practical mutual intelligibility, and even individuals belonging to distinct groups could in most cases have largely understood one another. These determinations rest upon vocabularies procured in the same manner and in the same orthography from twenty tribes, representing all of the six groups mentioned. It does not appear that any of the extinct dialects belonged to other groups than the six that are known.

The Moquelumnan family is of interest because its principal body is situated between the Maidu and the Yokuts, two stocks that show entirely different conditions as regards their dialectic differentiation: the Maidu family on the north having three well-marked dialects, apparently without significant sub-dialectic divisions, and without relation of the political unit — the village — to the dialect; while the Yokuts family shows at least forty dialects falling into several groups, or, it might be said, six principal dialects, each differentiated into a number of sub-dialects corresponding exactly with the unit of political organization, the tribe. The environment of the three stocks is similar, all being situated on the western slope of the Sierra Nevada, between the crest of this range and the north-south river system longitudinally bisecting the San Joaquin-Sacramento valley.

The Moquelumnan family was originally included with the Costanoan in the so-called Mutsun, named after the language, or more probably the village, at the mission of San Juan Bautista. The Moquelumnan family, as at present generally recognized, consists of two detached divisions, the principal one occupying the territory in the San Joaquin valley and on the slope of the Sierra Nevada that has been mentioned, the other a smaller territory on and near the coast north of San Francisco. This smaller division comprises three dialects, determined by Mr Barrett. These dialects are spoken

in two separate areas. Of these two areas one is near Clear lake, the other north of San Francisco bay. The speech in the two areas is distinct, but that of the area near San Francisco bay is subdivided into two dialects, the extent of one covering the greater part of Marin county, the other being confined to the immediate vicinity of Bodega bay. These three northwestern Moquelumnan dialects together form a unit as compared with all those of the larger body in the interior, as might be expected from their geographical relation.

The people of the principal division of the Moquelumnan family call themselves by some form of the name *Miwok*, under which they have most frequently been known. They occupy one of the largest territories held by a single family in California, extending from the Consumnes river on the north to the Fresno and Chowchilla in the south. The miscellaneous published vocabularies show considerable differences in this area, but as a body are open to the objections that have been described. Incidentally to investigations among neighboring families, the author has obtained half a dozen list of words from the *Miwok* in different portions of their territory, particularly the extreme north and south. Comparison of these with one another, and in part with the published vocabularies, brings out at least certain features of the distribution of the *Miwok* dialects.

Preëminently it appears that the language of the people inhabiting the plains along the lower Consumnes and Mokelumne differed most markedly from the speech of all the other *Miwok* known. This divergent group was in contact with, or propinquity to, the southern Maidu and Wintun, the northeastern Costanoan people, and the detached branch of the Yokuts known as Chulamni or Cholovone, who inhabited the region about Stockton. The group comprised the Mokelumni and Mokosumni, on the lower courses of the streams bearing similar names, and the Ochiekhamni, of unknown but probably adjacent habitat, besides perhaps other divisions. Its extension southward is not known. As compared with this northwestern group in the valley, all the remaining *Miwok* appear to form a comparative unit, from the Koni between the upper Consumnes and Mokelumne to the Pohonichi on Fresno river. This larger

unit shows only one marked subdivision. The speech in the northern part of the territory differs somewhat from that in the south. Within the northern area there are no differences of moment between the Koni at Ione in Amador county and the dialect of Angels Camp in Calaveras county in the Stanislaus drainage. The Tuolumne vocabulary published in Powers' "Tribes of California" shows the same form of speech to have prevailed at least as far south as this river. As against this northern unit, the author's vocabularies from Merced and Fresno rivers also present a practical uniformity. It is probable that there were slight differentiations within each of these two groups, but as to such nothing can be affirmed in the present state of knowledge. A full linguistic survey by a single investigator must be made to elucidate this matter. Such a survey the Department of Anthropology of the University of California is at present undertaking. Until the results of this investigation shall become available, it can be stated that there appear to be but three well-marked Miwok dialects: one, the most divergent, in the northern plains, a second in the northern and central foot-hills and mountains, and a third in the south, and that the diversification within each of these dialects or languages appears to be of comparatively little moment. It will therefore be seen that the dialectic relations of the Miwok people resemble those of their northern neighbors, the Maidu, and not those of the Yokuts to the south.

	"MORELUMNI" San Joaquin Co.	"KONI" Amador Co.	ANGELS CAMP Calaveras Co.	YOSEMITE Mariposa Co.	"POHONICHI" Madera Co.
1	kenatil	luti	keñe	keñe	keñe
2	oyoko	otiko	otiko	otiko	otiko
3	teloko	tolokocu	tolokocu	tolokot	tolokot
4	oiceko	oyisa	oyisa	oyisa	oyisa
5	kacoko	macoka	macoka	mahoka	mahoka
6	temepu	temoka	temoka	temoka	temoka
7	kenekak	kenekak̃	kenekak̃	titawa	titawa
8	kawinta	kawinta	kawinta	kawinta	kawinta
9	woe	woe	woe	eliwa	eliwa
10	ekuke	naatca	naatca	naatca	naatca
person	miw*	miw̃	miw̃	miw̃	miw̃
man	cawe	naña	naña	naña	naña
eye	welai	c̃ātu	c̃ātu	x̃āntu	h̃āntu

	"MOQUELUMNI" San Joaquin Co.	"KONI" Amador Co.	ANGELS CAMP Calaveras Co.	YOSEMITE Mariposa Co.	"POROMICH" Madera Co.
mouth	lupe	owo	awo	awo	owo
nose	huk	huku	nito	nito	nito
foot	kolo	kolo	hate	hate	hate
bone	kiwa	kūtcitcu	kūtcitcu	kūtcitc	kūtcitc
land	wali	wali	wali	tole	tole
smoke	kali	hakisu	hakisu	hakisa	hakisa
ashes	sike	yoli	sike	sike	sike
rock	kulu	cawa	cawa	cawa, hawa	hawa
wood	tumai	cucu	cucu	cūcu, xūxu	hūhu
red	wetete	weteti	weteti	yotcotci	yotcotci
white	pututu	keleli	keleli	pasasi	pasasi
black	kululu	kululi	kululi	tuhuxi	tuhuxi
large	teme	ūtu	ūtu-	oyani	oyani
good	welwel	gutci	gutci	tcūtu	tcūtu
eat	tcam-	ūwu	ūwu	ūwu	ūwu
north	tela-wit	tam-	tam-		tam-
south	yak-wit	tcum-	tcum-		tcum-
east	huke-wit	hisu-	hicu-		hihu-
west	etca-wit	olowi-	olowi-		olowi-

In the apparently rigid restriction of the northern plains or Mokelumni dialect to the valley, there appears however to be a similarity to conditions existing among the Yokuts. In the latter family the six dialectic groups are with scarcely an exception each confined either to the level valley or to the foot-hills. Even more is it found, when the interrelations of the six Yokuts groups are examined, that they fall into two principal divisions, one consisting of two valley groups, the other of four foot-hill groups. Among the Maidu the dialects bear no such relation to the topographical environment. The southern Maidu dialect extends from the Sacramento river to the crest of the Sierras, and the northwestern is situated both in the plains and in the foothills. It is not impossible that the plains dialect of the Miwok, which so far is known only from the north, extended to the southern limits of Miwok territory. Very few plains Miwok still survive and from none of them except those in the extreme north do vocabularies appear to have been obtained. While there is no direct evidence to support this supposition of a fundamental distinction between the Miwok dialects of

the plains and of the mountains along their whole north-south extension, yet the analogous condition existing among the Yokuts makes it a possibility that should not be lost sight of. If on the other hand the plains group at present represented by the Mokelumni dialect shall be found not to extend southward to the limit of Miwok territory, its divergence from the main stem of Miwok speech must probably be laid to the influence of its geographical position in proximity to languages of four other families.

An exhaustive study of the Miwok dialects will also make clearer the relations existing in California generally between the smallest linguistic unit and the smallest political or social unit. As has been said, in the territory north of the Miwok, as among the Maidu and Pomo, this political unit is the village. It is the site of the village and not any social organization that gives the name to a group of people. At the same time there is no direct relation between the village and the dialect, as each dialect usually comprises a number of separate villages. Among the Yokuts it is the tribe or body of people, and not the locality or territory occupied by them, that gives them their name, and at the same time the dialect and tribe are coincident. While the Miwok in this respect seem to agree more nearly with their northern neighbors, there are certain indications or at least possibilities that they approximated the Yokuts in some respects. Thus while over the greater part of their territory their names for one another seem to have been largely the indefinite "northerners," "southerners," "easterners," and "westerners" that any loosely organized people might apply to its neighbors, there yet are a number of names, especially in the north, that are given by the Indians as if they referred to tribes. Such are Mokelumni, Moko-sumni, Lelamni, Tawalimni, Sakayakūmni, and Walalshimni. It is of course not excluded that these apparent tribal names will on close examination prove to be only place names, as has so often been the case in the study of California ethnology. At the same time the uniform ending of most of these names, and its similarity to a frequent ending of Yokuts tribal names, make this seem less probable than would otherwise be the case. It is only necessary to compare with the Miwok names just given the Yokuts Chulamni, Tulamni, Yaulamni, Wūkchamni, Telamni, Choinimni, and Chukai-

mina. At the same time this ending *-amni*, *-umni*, or *-inni* is found also among the southern Maidu on names that apparently refer to village sites and not to bodies of people. Such are Yukulme, Sekumne, and Yalisumni, given on Professor Dixon's recent map of the Maidu.¹ The fact that this ending should have a similar use in three unrelated stocks is of itself of much interest and significance, and when better understood should not only throw new light on the historical relations of these bodies of people, but elucidate their political organization and its relation to their dialectic differentiations.

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SAN FRANCISCO.

¹ *Bulletin of the American Museum of Natural History*, vol. xvii, pt. 3, 1905.

HOPI CEREMONIAL FRAMES FROM CAÑON DE CHELLY, ARIZONA

By J. WALTER FEWKES

On a visit to the Museum of the Brooklyn Institute in December last, I became greatly interested in two ethnological specimens obtained by Mr Stewart Culin in Cañon de Chelly,¹ Arizona. These objects, to which I have briefly referred in my article on Hopi Shrines,² undoubtedly belong to the Pueblo culture. They are not duplicated in other collections, and have a much greater interest than attaches to their rarity, for they seem to verify a legend, current in the East Mesa pueblos of the Hopi, of the former habitation and migration of one of their important clans. They consist of wooden frames with sliding appendages, handles, and symbolic attachments. Their general appearance is shown in the accompanying illustrations (figures 22 and 23).

Mr Culin informs me that these frames were found with certain fragments of masks, a brief account of which has been published³ in a notice that gives also a Navaho legend regarding the origin of the masks and closes with a suggestion that they once belonged to the Asa clan, a Tanoan people now domiciled in the Hopi pueblo of Sichomovi, who are known to have lived at Zuñi and to have sojourned in the Cañon de Chelly for several years.⁴ No reference to these frames is made in Mr Culin's account, and as the evidence of Asa ownership which they furnish is corroborative and more de-

¹ These objects were purchased from Mr C. L. Day by Mr Culin, curator of ethnology of the Brooklyn Institute Museum, to whom I am indebted for many kindnesses in the preparation of this notice.

² *American Anthropologist*, VII, April-June, 1906.

³ "Hopi Indian Masks from a Cave in the Cañon de Chelly, Arizona," *Bulletin of the Brooklyn Institute*, Jan. 6, 1906.

⁴ "The Kinship of a Tanoan-speaking Community in Tusayan," *American Anthropologist*, 1894, VIII, p. 164-165: "It is likewise said that after they (the Asa) had lived some time with the Hopi a number of them wandered off to the Tseyi ["Chelly"] Cañon and intermarried with Athapascun (Navaho) tribes."

cisive than that afforded by the fragments of masks, I have ventured to supplement and support by additional facts the notice referred to.

An examination of one of these frames shows its general form as given in the figure, in which *a, a'* is a wooden bar, apparently in one piece, in which are cut two slots (*b, b'*). This bar has a round handle (*c*) midway of its length, opposite a terrace (*d*) symbolizing

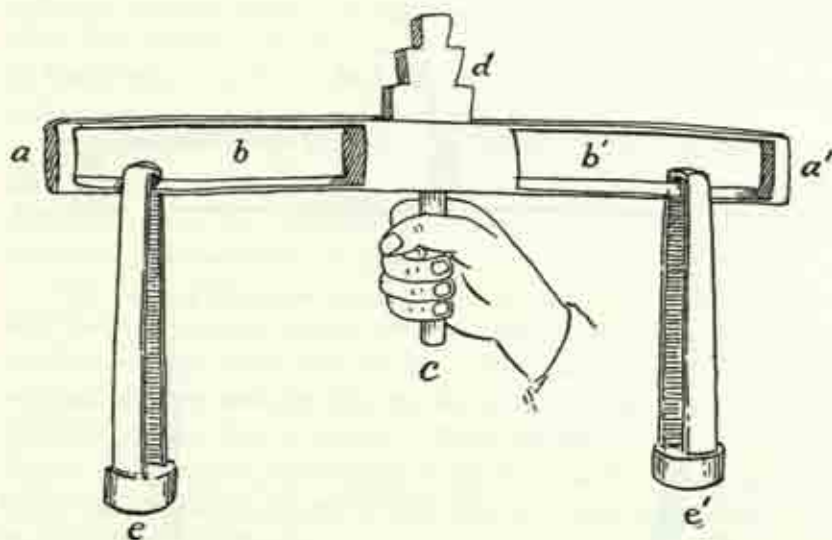


FIG. 22. — Frame carried by Yaya priest. (Brooklyn Institute Museum.)

a rain cloud. Two pendants (*e, e'*) slide freely in the slots (*b, b'*), so that if the bar be moved violently sidewise, these appendages strike the ends and the middle, making a noise and suggesting a rattle. Similar frames still used by the Hopi in ceremonies at their East Mesa villages were figured several years ago in a picture of a priest introduced in my account of "The Lesser New Fire Ceremony at Walpi," and later reproduced in a series of native drawings of Hopi kachinas.¹ These illustrations represent masked men called Sumaikoli and Kawikoli, accompanied by priests known as Yayas bearing in their hands similar frames.

Apparently Mrs Stevenson refers to frames of identical shape in

¹ *American Anthropologist*, 1901, n. s., III, 438, pl. xi; also *Twenty-first Annual Report of the Bureau of American Ethnology*, pl. xxxiv, xxxv.

her description of the Shumaakwe ceremony at Zuni.¹ She writes as follows :

A charm fashioned of wood and similar to one of the bars of the suspended form above the altar is carried by a young man whenever the Shumai'koli appears, the bearer manipulating the bar before the god, which appears to have mystic control over the Shumai'koli. The writer has observed the same thing among the Hopi Indians.

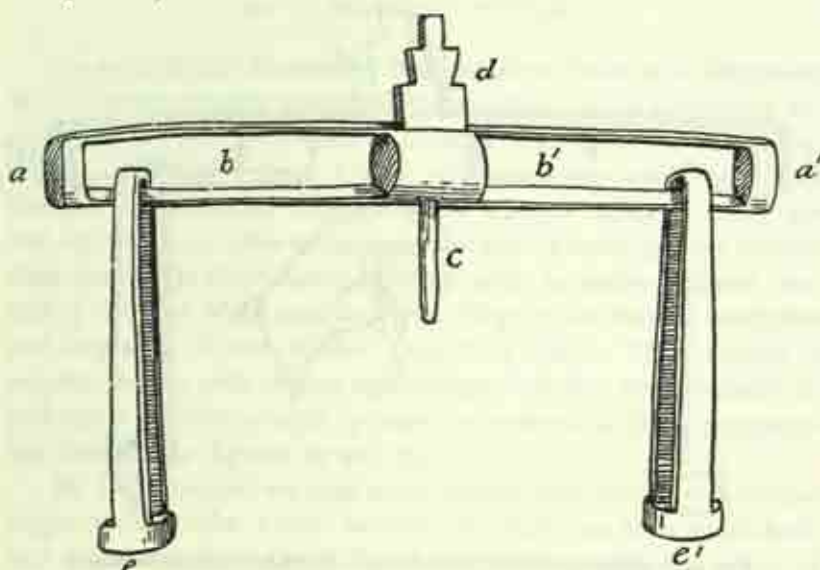


FIG. 23. — Frame carried by Yaya priest; length 24 in. (Brooklyn Institute Museum, cat. no. 5633.)

The same author says also :

Whenever he [the charm-bearer] waves the charm the Shumai'koli backs off a distance and then starts forward while the charm-bearer vigorously manipulates the charm to draw the god to him.

And later :

The charm-bearer stands south of her [the female leader], facing east, and holds his charm above his face with his left hand and shakes a small gourd rattle with his right, while he sings a low chant, reminding one of the intoning of a Catholic priest.²

¹ *Twenty-third Annual Report of the Bureau of American Ethnology*, p. 540, 543, 548-549.

² The Saiapa who accompany the Zuni Shumaikoli correspond in some respects to the Kawikoli of the Hopi. The Zuni Shumaikoli is of course the same as the Walpi Sumaikoli.

It appears that the main purpose of the ceremony of the Sumaikoli of the Hopi and its equivalent, the Shumaikoli at Zuñi, is the same. Both are fire rites; both were derived from Rio Grande pueblos.

The true significance of these frames is unknown, but the respect paid to them seems to indicate that they are something more than rattles of unusual shape. In her representations of the Shumaakwe altar Mrs Stevenson figures a cross hanging above it, made of two¹ of these frames united, a symbol that the Hopi would interpret as a sky, star, or four-world-quarter symbol.

Of the nature of the rites that are performed when these objects are employed we may judge in part from a study of both Hopi and Zuñi variants of the Sumaikoli ceremony. The ceremony recalls in several particulars the Fire dance of the Navaho.

The Yaya priesthood claim wonderful magic powers in controlling fire² and say they are able to cure certain bodily ailments with its products — heat, ashes, and smoke. Their patroness is the Spider-woman, but they worship also the Sky-god, symbolized by the Sun, and Masauü, the God of Death. They call upon ancestral beings, known as Sumaikoli, distributed in the four cardinal directions, to bring rain, and in the course of their rites they make prayer-offerings to all these supernaturals.

The important point to be considered regarding these frames is their clan ownership. We know that their modern representatives belong to the Yaya priesthood, hence it is desirable to discover the clan kinships or affiliations of this fraternity. The Yaya were intro-

¹ Note that two of these frames were found together in the Cañon de Chelly cave. This would imply that they were sometimes fastened together in the form of a cross, as at Zuñi; but their handles show that they were carried in the hand as seen in Hopi pictures of the Yaya priests. They were apparently rattles, suggesting the *matracas* used for bells in Latin American countries on Good Friday. These *matracas* are commonly carried in the hands and are used during the *troubadour*, but sometimes, as at Jalapa, Mexico, the *matraca* is placed in the church belfry. It is a large wheel with a clapper, and when turned can be heard all over the city.

² I need not here relate the many stories of handling fire, with accompanying necromancy, that the Yaya ascribe to their ancestors. They even claim to be able to eat fire, or to put live coals into their mouths, which may well be doubted. Their claim to cure bodily ailments with fire reminds one of the principle "*similia similibus curantur*." Burning sensations of the skin supposed to be due to fire are, they hold, cured by fire and its products.

duced into Walpi by either Keresan or Tanoan clans, either directly or by way of Zuñi, and this introduction is commonly said to have taken place in comparatively modern times. The Asa clan, who claim that their ancestors lived in the Cañon de Chelly, are of Tanoan origin and are said to have been related to the Tewa of Hano and of the Rio Grande pueblos. The presumption is reasonable that these frames were Asa property. If such be the case the exact site of the habitation of this clan in the Cañon de Chelly may be determined by the situation of the cave in which the Sumaikoli paraphernalia were found. But the fact must not be overlooked that the present Sumaikoli chief is a member of the Badger clan¹ who are closely associated with the other Tanoan peoples. Moreover, there are two sets of Sumaikoli paraphernalia on the East mesa: one at Walpi, the other at Hano. The latter, formerly owned by the Sun clan, may have been brought by the ancestors of the Hano clans directly from the Rio Grande.



FIG. 24. —
Sumaikoli
standard;
length 34 in.
(Brooklyn In-
stitute Muse-
um, cat. no.
5631.)

According to *Museum Notes* (the article above cited), there were other ceremonial paraphernalia found in a bag with these fragments. What light do they throw on the clan ownership of the specimens here considered? One of these objects is a peculiarly ferruled stick (figure 24) the use of which is problematical. This stick is, I believe, a Sumaikoli standard, which was placed at the entrance to the room where the altar of this ceremony was erected, for a similar standard is still used at Walpi when the Sumaikoli is celebrated. The modern representative consists of two ferruled sticks with facets at the ends. One of these is like the above-mentioned specimen, the other has a hollow gourd attached at one end. When the secret rites are in progress these sticks are stuck in the straw covering of the kiva to indicate that such

¹ The Badger clan is sometimes called a Hanumnyamu, or Tewa people, akin to the Asa and Hano clans. It was associated with the former in founding Sichomovi after the return from the Cañon de Chelly.

rites are taking place in the room below. The Cañon de Chelly stick is much more elaborate than the standard now used at Walpi and may have served for another purpose.¹

The evidence drawn from the fragments of masks found with their frames coincides with that of the latter, for like them the masks are preeminently those of Keresan and Tanoan peoples. According to the article cited these masks belong to the Humis and Shalako kachinas, both of which were introduced into the Hopi pueblos from the Rio Grande.

The Humis, or Hemis, kachina among the Hopi is said to have been derived from Jemez, New Mexico. Naturally it is a favorite with both the Badger and the Asa, as well as with all other clans of eastern origin. The material from the Cañon de Chelly is a framework and a painted skin, its former cover, that has been identified as the "tablet" ² of a Humis-kachina helmet.

A Shalako mask also is mentioned as having been found with the Humis mask. This mask I have not seen, but as the Zuñi Shalako at Sichomovi was introduced from the former pueblo about forty years ago by the Badger clan, the occurrence in the cave of a fragment of a mask with other dance paraphernalia of the Badger and Asa clans is readily explained. The Hopi Shalako was brought to Walpi by clans from the ancient settlements along the Little Colorado.

The Sumaikoli frames and standard, together with the masks and other paraphernalia found in the Cañon de Chelly cave, verify the legends of a comparatively late occupancy of certain cliff-dwellings in this region by people from the East mesa. They point distinctly to the Asa clan as their probable owners. Taken in connection with other evidences they support the conclusion that some of the cliff-houses of that cañon were inhabited in comparatively recent time. The so-called Hopi pottery found in the cañon is not unlike that now manufactured by Tewa potters; and to these people, no doubt, can be traced the peach tree and the presence of sheep, both of

¹ A similar problematical object was found at Sikyatki and another at Awatobi, which would further indicate eastern influences in these pueblos.

² These tablets are now generally made of thin boards, but formerly they were manufactured of skin or cloth stretched over a support.

which prove post-Spanish occupancy by them of this section. I believe the specimens above considered are most instructive verifications of Asa and Badger clan traditions.

It might pertinently be asked, "Why could not these objects have been derived from Zuñi or possibly directly from the Rio Grande pueblos, in both of which localities the Sumaikoli culture exists and in some of which similar paraphernalia are still used?" Migratory bands were continually passing near the entrance to the cañon where the paraphernalia were found, in their journey from the Rio Grande region to the Hopi pueblos, and some of these migrants may have lagged behind or tarried there for a longer or shorter time, and may have left some of their religious paraphernalia in that region. While no evidence afforded by the specimens makes this supposition impossible, the Navaho legend that led to the discovery of these objects is so explicit that we must conclude that the descendants of their owners now inhabit pueblos on the East mesa. Although the Asa tradition of their life in Cañon de Chelly is circumstantial, it is not impossible, considering the kinship of the clans, that some of the Badger people accompanied the Asa when the latter sought a home in that place. At least we may definitely say that the frames, standard, and fragments of masks here considered formerly belonged to Hopi rather than to Zuñi or Rio Grande people, but that the clans which owned them originally came from the pueblos of the latter. Although there is strong evidence that these frames pertain to the Asa and Badger clans, it has not yet been conclusively shown which of these people introduced them into the East Mesa pueblos.

Strictly speaking, these objects are not distinctly characteristic of the most ancient Hopi, but belong to that early culture widely spread over the Southwest from which the Hopi have derived much of their mythology and ritual. They were introduced from those eastern pueblos which have contributed to the Hopi the major portion of their religious paraphernalia, as well as prayers and songs, and their introduction is so recent that even the clans which brought them are not wholly unknown.

BUREAU OF AMERICAN ETHNOLOGY,
WASHINGTON, D. C.

THE SLOANE COLLECTION IN THE BRITISH MUSEUM

By DAVID L. BUSHNELL, JR.

In 1753 the British Nation acquired by purchase the large and varied collections belonging to Sir Hans Sloane, forming the nucleus of the British Museum.¹

The old manuscript catalogue of the collection contains many quaint and interesting entries, often including brief though comprehensive descriptions of the objects. Unfortunately dates are seldom given, but we must remember that all the material was brought to England before 1753 and that some specimens may have been obtained during the seventeenth century.

Under the heading of "Miscellanies" are records of more than two thousand objects, gathered from various parts of the world, including many from the colonies of Virginia, South Carolina, and New England, from the Iroquois country, and the region about Hudson bay. Many of the specimens called for in the catalogue no longer exist, a fact to be regretted by all interested in American ethnology, especially as old material from the eastern part of the country is so scarce.

The object of this article is to make known and describe such specimens belonging to this old collection as now remain in the British Museum, all of which are here figured. There are, however, some stone implements, — axes, arrowheads, etc. — belonging to the collection, that were brought from the colonies. To these I shall not refer, as many similar objects are preserved in various collections, and as the ones just mentioned are of no special value. Nor shall I deal with certain specimens from the northern Eskimo, from the region of Davis strait.

Before describing the existing specimens, it will probably be of interest to quote certain notes in the catalogue, for although the material is lost, it may be of assistance in future work to know that

¹ See note by the late Dr. Thomas Wilson in *American Anthropologist*, II, p. 190, 1900. — EDITOR.

certain things were used at one time by the Indians along the Atlantic coast. In copying the entries I have followed the original spelling and have recorded also the number of the object as it is entered in the catalogue.

OBJECTS CATALOGUED BUT NO LONGER EXISTING

FROM VIRGINIA

- 913 A Virginia girdle made of some rush or other such like vegetable.
- 1411 An Indian shoe from Virginia w^t rattles & dy'd porcupine quills.
- 1412 The same w^tout rattles.
- 1369 A Strum Strump made of a round large gourd.
- 1370 A basket of canes from the same [Virginia].

There are several references to strings of wampum, "Indian money," from Virginia and elsewhere; but I shall not quote them in detail.

FROM SOUTH CAROLINA

The colony of South Carolina was well represented in the collection, and fortunately one of the most interesting objects, which will be described later, has been preserved to the present day. Other entries in the list are:

- 1458 A negro drum from South Carolina, by Mr Standish.
- 1237 A *Maracca* or rattle of a gourd made use of by the Indians of Carolina in their triumphs, calumets etc., from Col Nicholson.

This was probably the form of rattle shown in White's drawings which were reproduced by De Bry as plates XVII and XVIII in Hariot's *Virginia* (1588). The text describing the first of these plates reads:

. . . holding a certaine fruite in their hands like unto a rownde pompion or a gourde, which after they have taken out the fruits, and the seedes, then fill with small stons or certayne bigg kernells to make the more noise . . .

The *maracca* is, according to Strachey, "a rattle, such as they use in their ceremonies, made of a goard, *chungawwonawuk*."¹

- 1226 An Indian bowl w^t wth they play at bowls made of a gray sand stone, hollowed from Col Nicholson.
- 1485 An Indian fann made of canes some colored black, from Carolina, by Mr Dering.
- 1486 Another made of rushes.

¹ See note 2, page 679.

- 1203 An Indian apron from South Carolina made of the bark of the wild mulberry tree, this kind of cloth with a kind of basket they make with splitt cane are the only mechanical arts worth notice.

This reference at once recalls a paragraph written by an English traveler who visited the Carolinas some years after the "apron" was collected. In referring to the Catawba Indians, whose villages were near the boundary between North and South Carolina, he wrote :

The only manufacture that I can discover among them is that of party-coloured little baskets, table-mats, made of straw, and chips, or splits of different coloured wood ; and an ill-formed kind of a half-baked earthen ware.¹

- 1655 A girdle made of Porcupine quills dyed red and black from Carolina made by the Indians.

- 1371 A Cherokee Indian garter made of the ravelings of the cadene² they buy of the English. From Mr Dering of South Carolina.

It is interesting to know that the custom of raveling a piece of European cloth and using the threads in native weaving was followed at so early a day. This suggests the use of bayeta by the Navaho.

The following entries in the catalogue, relating to the use of buffalo hair by the Carolina Indians, are most interesting :

- 1215 A rope for tying anything. Made of the hair of the head of the American buffalo. Described by Mr Hennepin.

- 1216 The same hair dyed red and yellow, tyed in tufts on a string, as an ornament for the Carolina Indians.

- 1656 A pair of garters made of the same [quills] and Buffalos hair. from the same [Carolina].

The following reference is of equal interest ; although no locality is given, the girdle probably came from Carolina :

- 1536 A girdle made of Bufalos hair and porcupine quills.

Buffalo hair was evidently used by many tribes, from the Atlantic to the Rocky mountains, for making cords and blankets, and, as is shown above, tufts of it were dyed and used as ornaments. When Charlevoix reached the village of the Kaskasquias (Kaskaskia) on the Mississippi, during the autumn of 1721, he wrote :

¹ J. F. D. Smyth, *A Tour in the United States of America*, London, 1784, p. 193.

² A sort of inferior Turkish carpet imported from the Levant.

Their women are very neat-handed and industrious. They spin the wool of the buffalo which they make as fine as English sheep. . . . of this they manufacture stuffs which are dyed black, yellow or a deep red.¹

It is interesting to note that the hair was dyed yellow and red also by the Carolina Indians, as has been previously stated. That blankets were woven of twisted cords of buffalo hair is noted by Hunter :

The hair of the buffalo and other animals is sometimes manufactured into blankets, the hair is first twisted by hand and wound into balls.²

Hunter, of course, refers to the tribes inhabiting the country west of the Mississippi, more particularly to the Osage.

One more quotation will be of interest as showing the similarity of the work of the eastern and the far western tribes. Harmon, in describing certain customs of "the Assiniboin, Rapid Indians, Black feet and Mândans," wrote :

They do not often use bridles, but guide their horses with halters, made of ropes, which are manufactured from the hair of the buffalo, which are very strong and durable.³

FROM NEW ENGLAND

Formerly the collection was rich in material from New England, but with the exception of three objects which are to be described later, all have disappeared. However, I shall copy from the catalogue the entries referring to New England specimens, as many include some interesting notes.

1728 An Indian breast plate which they wear when they go to warr or at any great feast—made of shells out of the up country fresh water lakes, with the collar consisting of blue and white shells, where of four blue ones make a penny and six white ones. They drill the holes with the point of a sharp flint & worle them round on a fine gritty stone. From New England, by Mr. Jno. Winthrop.

This would certainly have been a most interesting specimen, but like many others it has been lost. The "collar consisting of blue and white shells, where of four blue ones make a penny and six

¹ Charlevoix, *Journal of a Voyage to North America*, London, 1761, II, p. 222.

² John D. Hunter, *Memoirs of a Captivity*, etc., London, 1824, p. 289.

³ Daniel W. Harmon, *A Journal of Voyages and Travels in the Interior of North America*, Andover, 1820, p. 336.

white ones," was without doubt formed of wampum beads. The next sentence, which describes the method of making the beads, contains valuable information :

- 1729 An Indian spoon & bowl made of the knot of a tree, which they burn hollow & then smooth and polish with a sharp flint and then soak it in their minerall springs to dye it. out of this they eat their *suckatash* which is venison, fish and indian corn boiled together.
- [1730 A spoon, described later.]
- 1732 A bundle of Indian candles or splints of pitch tree.
- 1733 An Indian box made of the bark of the birch tree by the Indians and dyed by the spaw water springs.
- 1735 A fine large Indian basket made by an Indian Queen, by Mr Winthrop from New England.
- [1736 A fish-line, described later.]
- 1738 An Indian *Mattump* or braided strap w^t w^{ch} they tye their children to the bark of a tree as soon as born. from M^r Winthrop from New England.
- 1739 An Indian Calumet or stone pipe of peace.
- 1740 Glue made of deers horns & fishes sounds by the Indians in America to glue the feathers into their arrows.
- 1741 A square piece of shell worn as an ornament by the Indians & formerly current at 3 shillings in money among the Indians.

The eleven specimens referred to above were obtained from the Indians of New England by John Winthrop of the Plymouth colony.

- 1819 A hollow trunc, canes & spears of wood for fishing. from New England.
- 1820 A very large bow & arrows from New England — by Capt. Walker.
- 1202 A red liquor used by the Indians in New England for curing dropsy, likely to be from the fruits of the *Solanum bacciferum racemosum*.
- 1835 An Indian stone pestle made to beat (in a trough made of wood, burnt and hollowed by them) Indian corn to make *nockeet*.¹

The last entries to be copied from the catalogue are two relating to Iroquois material :

- 125 A childs shoe of the Iroquois made of the maiz or Indian corn dyed.
- 204 A double cord made of the nerves of the *Orignac*² w^{ch} is thread with which they sew and adjust the heads of their arrows.

¹ *Nôkehick*: "Indian corn parched in the hot ashes . . . afterward beat to powder." — Roger Williams. The *nocake* of William Wood. — EDITOR.

² Or *original*, from the Basque word *orilla* or *orilla*, referring to the deer family. The term was transferred to America, where it became used specifically for the moose information from Mr J. N. B. Hewitt of the Bureau of American Ethnology).

EXISTING OBJECTS

I shall now describe the existing specimens, seventeen in number, beginning with that from Virginia. Unfortunately only one piece remains in the British Museum to represent the first English colony in North America.

FROM VIRGINIA

1368 An Indian drum made of a hollowed tree carved, the top being brac'd with pegs and thongs, wth the bottom hollow, from Virginia, by Mr Clerk.

This most interesting old specimen is formed of a single piece of wood. The extreme height is 400 mm.; the diameter of the head or top averages 245 mm.; the diameter of the base is 140 mm. The thickness of the wood forming the body of the drum is about 20 mm., but the perforation through the base is about 70 mm. in diameter, allowing the wooden wall to be about 35 mm. thick. The head of the drum is formed of a piece of untanned deerskin, passing over the outer edge of the wood, and then once around a hoop or band formed apparently of a root of a pine or a cedar tree, a section of which is about 10 mm. in diameter. About 80 mm. below the top of the drum, and placed equidistant, are six perforations passing obliquely through the wooden wall. Fitted into these perforations are movable pegs, about 140 mm. in length. The upper or exposed ends of these pegs terminate in a bulge, or bulb, with a groove at the base. Many narrow bands of cedar (?) bark, attached to the hoop around the head of the drum, pass in turn over the tops of the pegs. To tighten the head it was necessary only to tap the pegs, a very simple and ingenious device. As the heads of the pegs are much "mushroomed," it is evident the drum was often used. The decoration is in carving; probably no colors were used. It is singular, however, that the surface should have been covered with a thick, gummy substance. Much of this remains and is clearly shown in the illustration (plate xxxv). Although this drum is described in the old catalogue as being of Indian origin, it was more probably made by negroes, and may even have been taken to Virginia from Africa.

In the British Museum is a large drum from Ashanti, brought



DRUM FROM VIRGINIA

from Kumassi by Lieutenant Colonel Wolsey in 1896.¹ This piece, shown in figure 25, is 850 mm. high; the diameter of the top is 400 mm. Of course the base is hollow. The great similarity

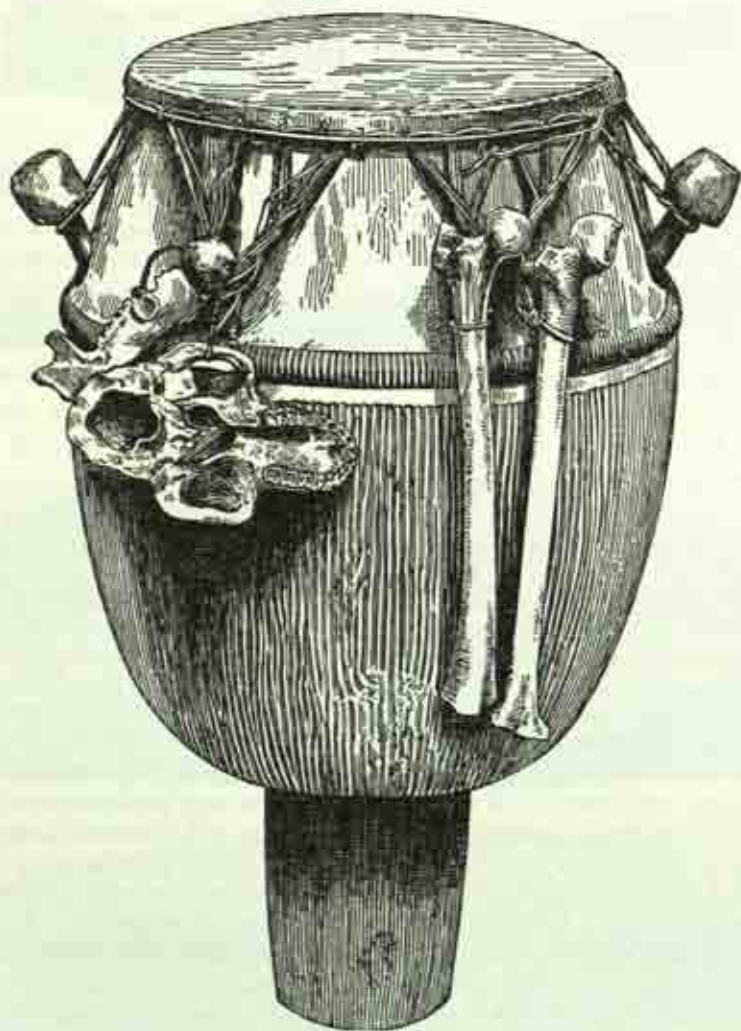


FIG. 25. — Drum brought from Ashanti, West Africa, in 1899. Shown for comparison with the Virginia drum illustrated in plate xxxv.

¹ A description of the use of drums of this form will be found in *The Siege of Kumassi*, by Lady Hodgson (London, 1901). An interesting plate facing page 262 of this book shows a group of natives with several such instruments.

between this and the Virginia specimen leaves little doubt as to the origin of the latter.

FROM SOUTH CAROLINA

Formerly the collection was rich in material from the colony of South Carolina, but now only one basket and two pipes are to be found. The basket however is a most valuable and interesting piece, and is probably a unique example.

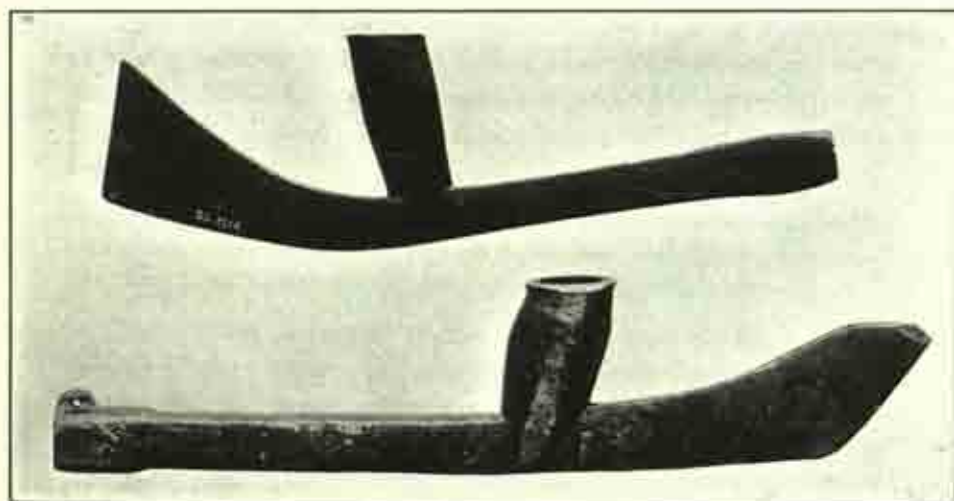
1218 A large Carolina basket, made by the Indians of splitt canes, some parts of them being dyed red, by the fruit of the *Solanum magnum Virginianum* . . . *rubrum*, and black. They will keep anything in them from being wetted by the rain. From Coll. Nicholson, Governor of South Carolina, whence he brought them.

Sir Francis Nicholson, by whom this and other specimens were brought to England from the colony of South Carolina, was born in 1660 and died in 1728. He was colonial governor of South Carolina from 1721 to 1725, returning to England in June of the latter year, and evidently taking the basket with him.

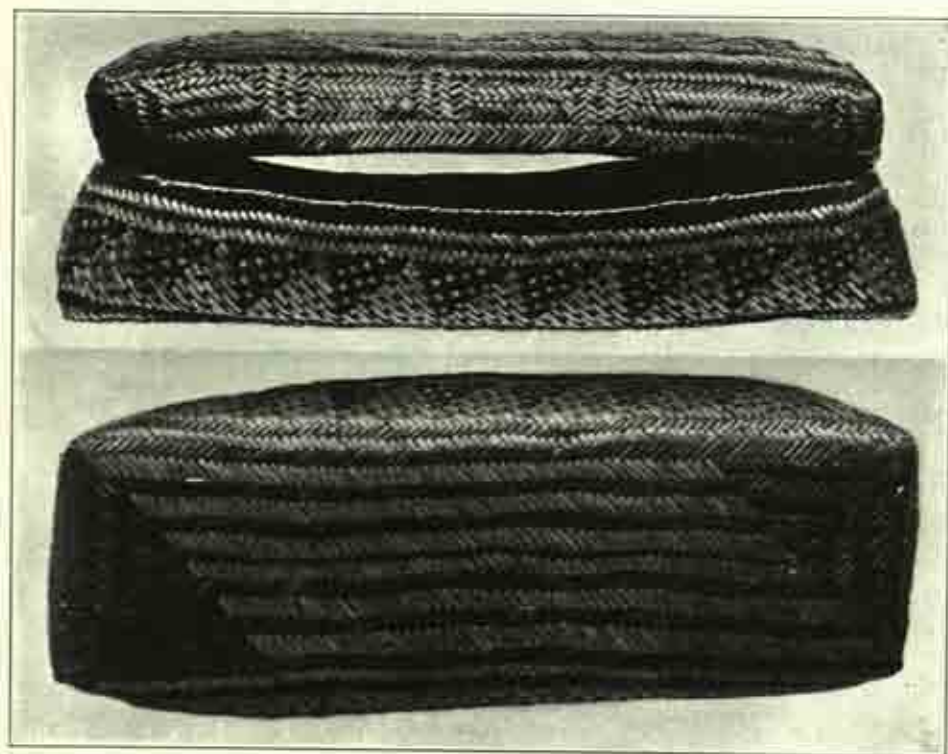
The dimensions of this rare old piece are: length 520 mm., greatest width about 165 mm., and average depth 95 mm. This basket is of the type described by Adair¹ as being used in Carolina about the middle of the eighteenth century. The description as given by him applies perfectly to the British Museum specimen, therefore I quote it in full:

They make the handsomest clothes baskets I ever saw, considering their materials. They divide large swamp canes into long, thin, narrow splinters, which they dye of several colours, and manage the workmanship so well, that both the inside and outside are covered with a beautiful variety of pleasing figures, and, though for the space of two inches below the upper edge of each basket, it is worked into one, through the other parts they are worked asunder, as if they were two joined a-top by some strong cement. A large nest consists of eight or ten baskets, contained within each other. Their dimensions are different, but they usually make the outside basket about a foot deep, a foot and a half broad, and almost a yard long . . . Formerly, those baskets which the Cheerake made were so highly esteemed even in South Carolina, the politest of our colonies, for domestic usefulness, beauty, and skilful variety. that a large nest of them cost upwards of a moidore.

¹ James Adair, *History of the North American Indians*, London, 1775, p. 424.



PIPES



BASKET (SIDE AND BOTTOM)

OBJECTS BROUGHT FROM SOUTH CAROLINA IN 1725

From this last statement by Adair we may consider this basket as having been made by the Cherokee, from whom it was probably obtained. There is a note in Lawson's *History* which probably refers to baskets of this form; if so, it shows them to have been made away from the coast.

A great way up in the Country, both Baskets and Mats are made of the split Reeds, which are only the outward shining part of the cane. Of these I have seen Mats, Baskets and Dressing-Boxes, very artificially done.¹

This basket is formed of two distinct parts, similar in shape though differing in size. Both parts are made with the rims somewhat smaller than the lower portions, causing them to fit securely when the smaller is forced into the larger. Strips of cane of two thicknesses are used in the weaving, thereby allowing different patterns to be formed on the inside and outside. The two distinct parts of the basket are interwoven for a distance of some two inches from the edge, causing it to be more rigid and firm. The colors of the strips are black and a dark red, both of which are dyed, also the natural yellowish brown. The patterns are formed either by various styles of weaving or by different arrangements of the three colors.

1214 Another [pipe] with an extant square piece cutt in the shape of the butt end of a gunn.

Made of a dark steatite. Extreme length, 200 mm.; height of bowl above base, 47 mm.; diameter of bowl, 20 mm., and of opening for the stem 7 mm. This pipe is the upper of the two specimens shown in plate xxxvi.

1221 The same [tobacco pipe] of a white marble or sope stone differently figured. w^t the pipe [stem] of cane coloured w^t spirall red stripes. There belongs to these some times a Maraca² or calabash or gourd wth something to rattle in it and five or 6 feathers of the white headed Eagle on a string. From Col. Nicholson of South Carolina.

¹ John Lawson, *History of Carolina*, London, 1714, p. 189.

² The name *matraca* is applied in Porto Rico to rattles made from the calabash tree, *Crescentia cujete*, and also to *Crotalaria retusa*, the ripe seeds of which become loosened and rattle in the pod. — Cook and Collins, *Economic Plants of Porto Rico*, *Cont. U. S. Nat. Herbarium*, VIII, no. 2, 187, 1903. The word is of Arawak origin.

A very good example of an old steatite pipe. The extreme length is 243 mm. ; the diameter of opening for the stem, only 6 mm. A small projection above the end of the stem is perforated, as may be seen in the illustration.

FROM THE IROQUOIS

Several excellent examples of old Iroquois weaving remain in the collection, to which I shall now refer.

- 573 A cord made of hemp and porcupine quills died. from the Iroquois by the Indian Kings—given me by Mr Middleton—for tying their prisoners.

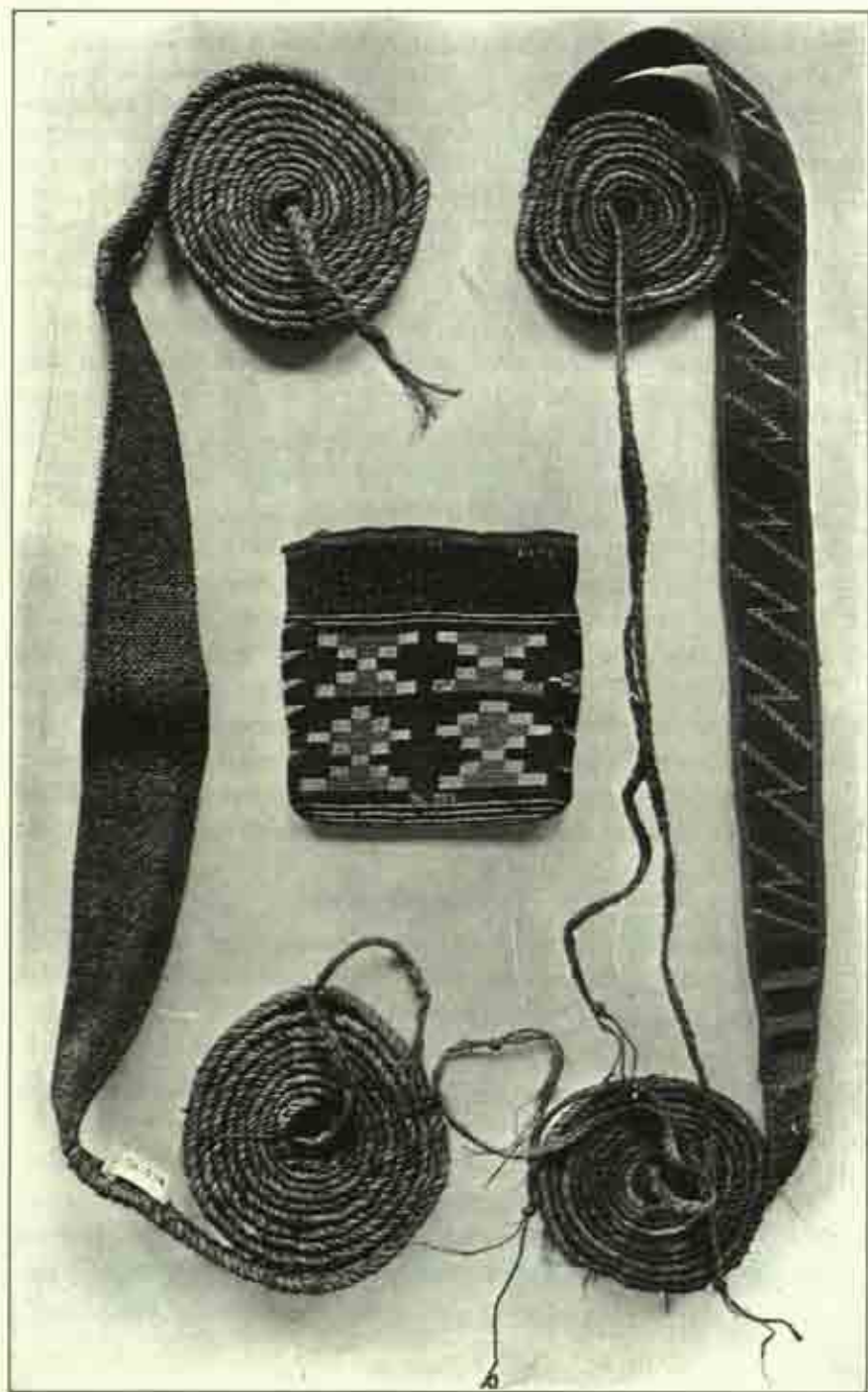
Mr (later Captain) Middleton, referred to in this and other entries in the catalogue, was first employed by the Hudson's Bay Company in 1720; he returned to England in 1742, at which time, it is safe to assume, he brought the material described in the lists. This cord, no. 573, is just 5 meters in length, woven evidently of native flax. In the middle is a band 530 mm. in length and 40 mm. in width, one side of which is decorated with porcupine-quill embroidery applied in a manner similar to the decoration on the small bag, no. 203. The quills are of three colors—red, black, and white. While the decorated band is of very fine weave, the cord attached to each end is very coarse, being composed of ten or twelve strands braided flat. The cords where they are attached to the band are about 25 mm. in width, but they taper to two strands which are separate for a distance of 400 mm. from the ends, thus forming two distinct cords. (See plate XXXVII.)

- 574 The same of a courser sort w^a out the quills.

This cord is a trifle longer than the other, being 5.12 meters in length. The flat band in the middle is 350 mm. in length and about 50 mm. in width; it is closely woven, but is not decorated in any way. The flat braided cords are attached to the ends of the band; both taper to single strands.

A cord similar to this is figured by Morgan,¹ whose description is here given in full:

¹ Lewis H. Morgan, *League of the Iroquois*, Rochester, 1851, p. 365.



IROQUOIS BURDEN STRAPS AND SMALL BAG

The burden-strap is worn around the forehead, and lashed to a litter, which is borne by Indian women on their back. It is usually about fifteen feet in length, and braided into a belt in the centre, three or four inches wide. Some of these are entirely covered upon one side with porcupine quill-work, after various devices, and are in themselves remarkable products of skilful industry. The braiding or knitting of the bark threads is effected with a single needle of hickory. . . . Of all their fabrics, there is no one, perhaps, which surpasses the porcupine-quill burden-strap, in skill of manufacture, richness of material, or beauty of workmanship.

It is certainly interesting to see how closely this description applies to the British Museum specimens, although they were collected more than a century before Morgan's account was written.

203 An Indian purse made by the Huron Savages of Canada with the crin or hair of the *Orignac*¹ wth they dye with roots.

This small bag, of Huron make, is 125 mm. square; the bag proper, however, is only 95 mm. deep, as an open band some 30 mm. wide passes around the top or opening (pl. xxxvii). It is made of native flax, in a simple basket weave. The outside is covered with split porcupine quills, some white, some brown, and others of a yellowish color, arranged in a simple design. The quills are fastened by being passed under and around the outer woof cords. The cords forming the open band are covered with quills dyed red. It will be observed that the description in the catalogue wrongly identifies the split porcupine-quills as the hair of the orignal, or moose.

FROM HUDSON BAY

The following specimens are described in the catalogue as having come from Hudson bay. They were probably obtained from Indians trading at some of the company's posts, but it is not possible to say by what tribe they were made.

2065 Thirty basketts made wth Birch Bark and adorned wth Porcupines quills, given me by Capt Middleton who brought them from Hudson's Bay.

This nest of 30 bark baskets, all similar in form and decoration and all well made, is a very interesting piece of work (pl. xxxviii). Around the top or upper edge of each basket are strips of roots or twigs bound with narrow split pieces of spruce roots. Through

¹ See note 2, p. 675.

this band or binding pass porcupine quills dyed red. This rim is divided into four sections by quills which take the place of the spruce-root binding. These quills are not dyed, but both the dark- and the light-colored ones are used. The smallest basket of the nest has a maximum diameter of 95 mm. and a depth of 32 mm. The greatest diameter of the largest one is 300 mm. and the depth about 86 mm. All the baskets fit closely one into the other.

201 A small racquette & [or] small snow shoe made by the savages of Canada w^t w^{ch} they walk on the snow. Sent by M^r Villarmont.

202 The same.

This is a pair of small snow shoes, or, to be more exact, models of snow shoes, of the usual Algonquian type. Length, 420 mm.; width, 140 mm.

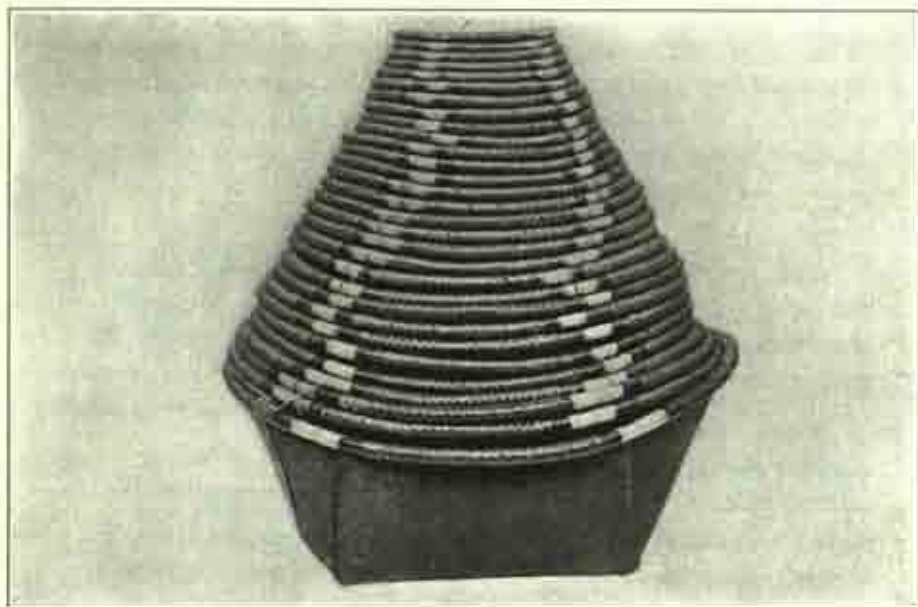
2040 A cradle w^t a pair of shoes (?) from Hudson's Bay, by M^r Cotts Surgeon.

A very small cradle board made of white cedar; extreme length, 373 mm., width, 147 mm. A narrow strip of cedar, curved and attached to the board proper, forms the frame over which the tanned buckskin is laced. The skin, which is fringed, was originally wrapped with porcupine quills colored red, but little of the wrapping now remains. Across the back of the board is a narrow band of skin to which are attached twenty strands of colored glass beads; to the end of each strand, which is about 40 mm. long, is fastened a small tuft of dyed hair. (Plate XXXVIII.)

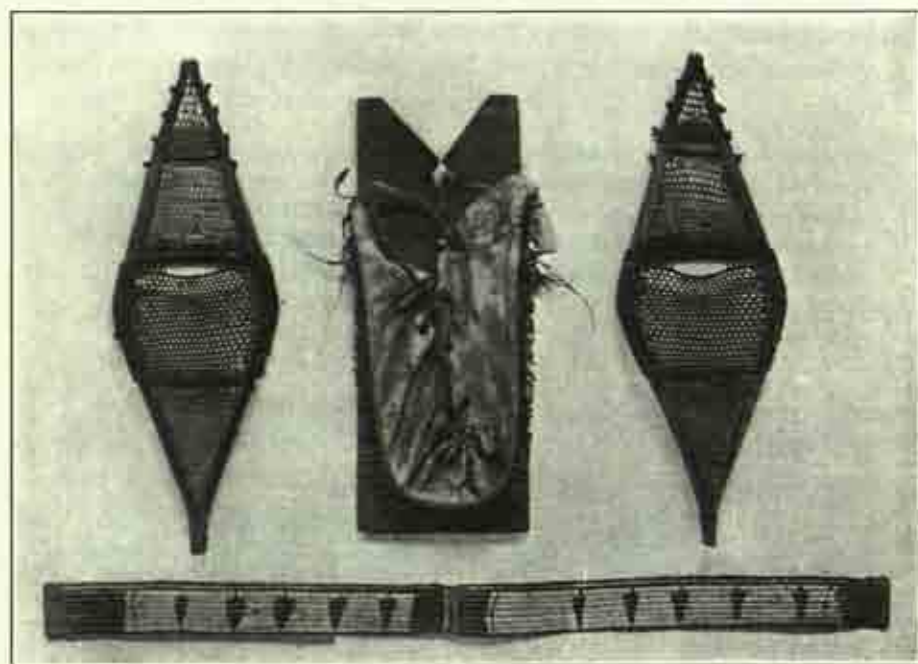
The last specimen shown in plate XXXVIII is a very interesting belt:

2043 A belt adorned with quills of birds or porcupines.

This object is made of a heavy, tanned skin, with a decoration in quillwork. The length is 720 mm. and the width 43 mm. The manner in which the quills are arranged and fastened is rather unusual. First, strips of bark or roots, averaging about 4.5 mm. in width, were closely and evenly wrapped with quills; these strips, eight in number, were then fastened to the band of skin, the edges of which were stitched with quills colored red. The colors of the quills used in this piece of work are the same as those on the thirty



NEST OF THIRTY BASKETS BROUGHT TO ENGLAND BY CAPTAIN MIDDLETON IN 1742



SNOWSHOES, CRADLE-BOARD, AND BELT
OBJECTS FROM HUDSON BAY

baskets, and there is something similar in the work. As will be seen in the illustration the ornamentation is separated into two parts, between which are two rows of small white glass beads. Pieces of wood about 5 mm. in diameter are fastened to each end of the belt.

FROM NEW ENGLAND

As has been shown elsewhere in this article, the colonies of New England were well represented in the Sloane collection, but of all the specimens mentioned in the catalogue only three now exist in the British Museum. It is gratifying however to have these, as they are objects of special interest.

758 A combe made of a moose horn from the east parts of New England, used amongst the native Indians.

This is certainly a strange type of comb and is probably a unique specimen (pl. xxxix). It is formed of a piece of moose antler, not more than 4 mm. in thickness, but the extreme length is 440 mm. The eleven teeth at the end are each about 58 mm. long. Incised lines and carving, producing a zigzag design in relief, form the only ornamentation. The sunken portion of the decoration as well as the straight lines are filled with a red substance, probably ochre. Near the lower end is one small perforation.

1730 An Indian Spoon made of the breast bone of a penguin¹ made by *Papenau*.—anno 1702.—an Indian whose Squaw had both her Legs gangren'd and rotted off to her knees and was cured by bathing in balsam water made by Winthrop Esq. of New England. The method was thus: He ordered two ox bladder to be filled wth his Rare Balsamick Liquor, made warm and the stumps put into the Bladders wth the water kept constantly blood warm and the leggs were perfectly cured in a few days time.

Such is the inscription written on the inside of the spoon. The ink has turned brown with age, as the words were written probably more than two centuries ago, when the spoon was obtained from

¹ Mr. H. W. Henshaw of the U. S. Biological Survey identifies this bird with the great auk or garefowl (*Alca impennis*), which ranged as far south as Massachusetts and became extinct about 1844. Mr. Henshaw adds that the Indians knew this bird well and undoubtedly killed large numbers for food, as many of the bones have been found in kitchen-middens.—EDITOR.

the Indian Papenau. This is probably the only specimen of the sort in existence today, and it may well have been the ordinary form of spoon made and used by the Indians of New England. The length of this specimen is 104 mm. and its greatest width is 41 mm. Through the larger end are three small perforations. Probably threads of flax, or sinew, passing through the perforations, bound the spoon to a wooden or a bone handle. (See plate xxxix.)

The third New England specimen in the collection is a fish-line :

- 1736 A fishing line made of the wild Indian hemp, wth the shank bone of a fawn which serves both as hook and bait. The fish biting at it swallowing it down.

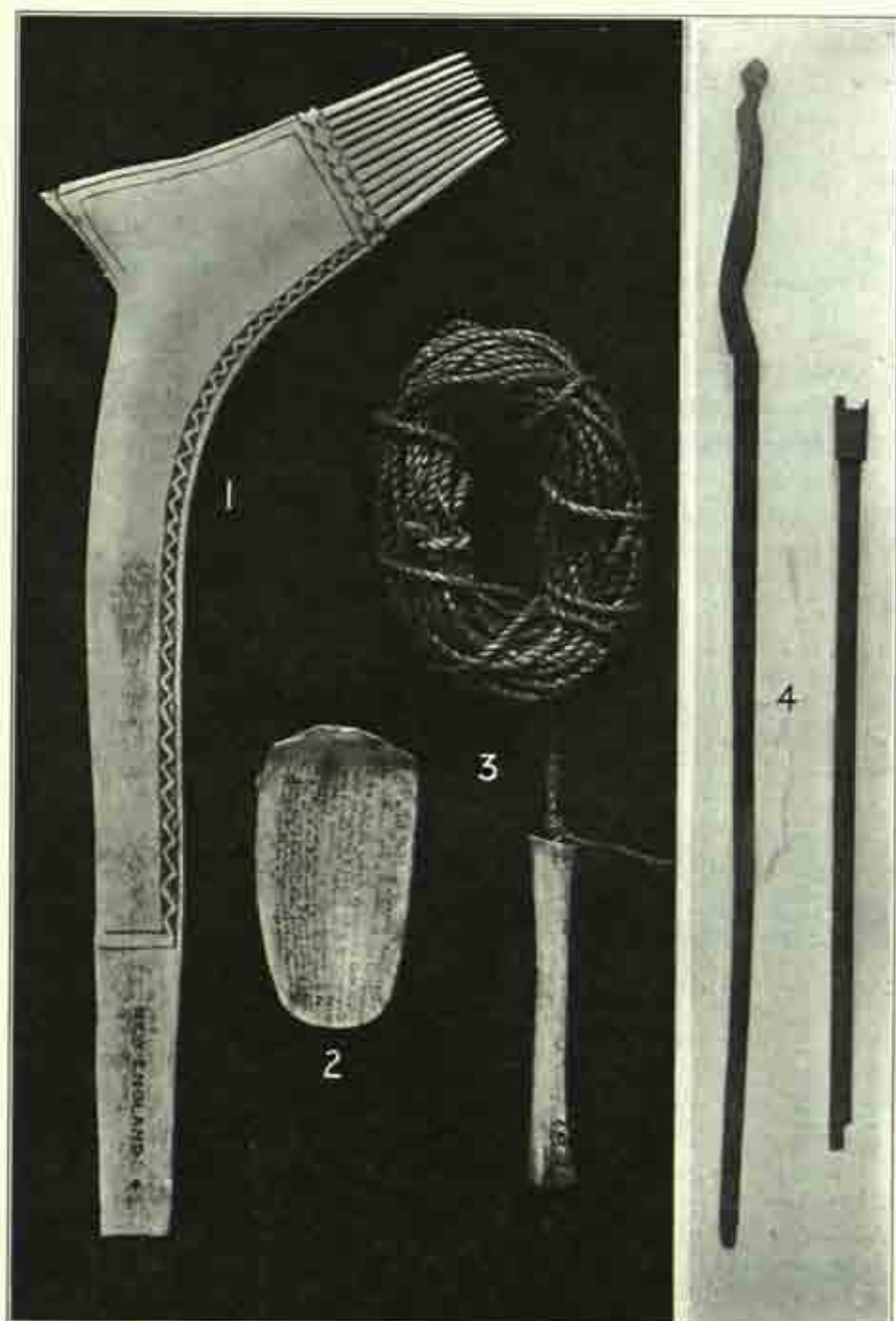
This line belongs to the collection sent by John Winthrop from New England and, according to the old label attached to the specimen, was made and used by the Indians of that region. The entire length of the cord is 13.6 meters, and of the bone 120 mm. As both ends of the bone have been cut away, it forms a tube through which the cord passes. The end of the cord is then tied, forming in this way a loop through the bone; unfortunately this is not shown in the illustration (pl. xxxix). There is nothing to indicate how or where the sinker was attached.

OTHER OBJECTS

Only two objects now remain to be described. There is no way of ascertaining from what part of America these came, although they were obtained probably from the northern Indians. These specimens are shown on plate xxxix with the New England material.

- 572 A long thin piece of wood like a lath shaped like a knife with a handle which one of the Indian Kings thrust down his throat. 'Tis used as a remedy to cause vomiting as a proang [?] tho' it did not cause him to vomit.

This most unusual but not unknown object is made of hickory. Both ends are broken; the part remaining is 515 mm. in length, with an average width of 14 mm. and a thickness of 2 mm. It is very doubtful whether these sticks were used for the purpose described, but rather were employed in ceremonies such as those performed by



1. COMB

2. SPOON

3. FISH-LINE

4. SWALLOWING-STICKS (T)

OBJECTS BROUGHT TO ENGLAND FROM NEW ENGLAND

the present Zuñi Indians and by the ancient inhabitants of the West Indies.

Another more perfect piece is :

1532 An instrument for cleaning the stomach used by the Indians of America.

This object also is made of hickory ; it is evidently entire and perfect. The length is 820 mm., the average width 15 mm., and the thickness about 2 mm.

In this article I have described all the specimens from the American colonies remaining in the British Museum as part of the original Sloane collection. Before bringing the paper to a close I desire to express my indebtedness to Mr Chas. H. Read and Mr T. A. Joyce, of the British Museum, without whose assistance it could not have been prepared.

LONDON,
ENGLAND.

A CACHE OF STONE BOWLS IN CALIFORNIA

By HORATIO N. RUST¹

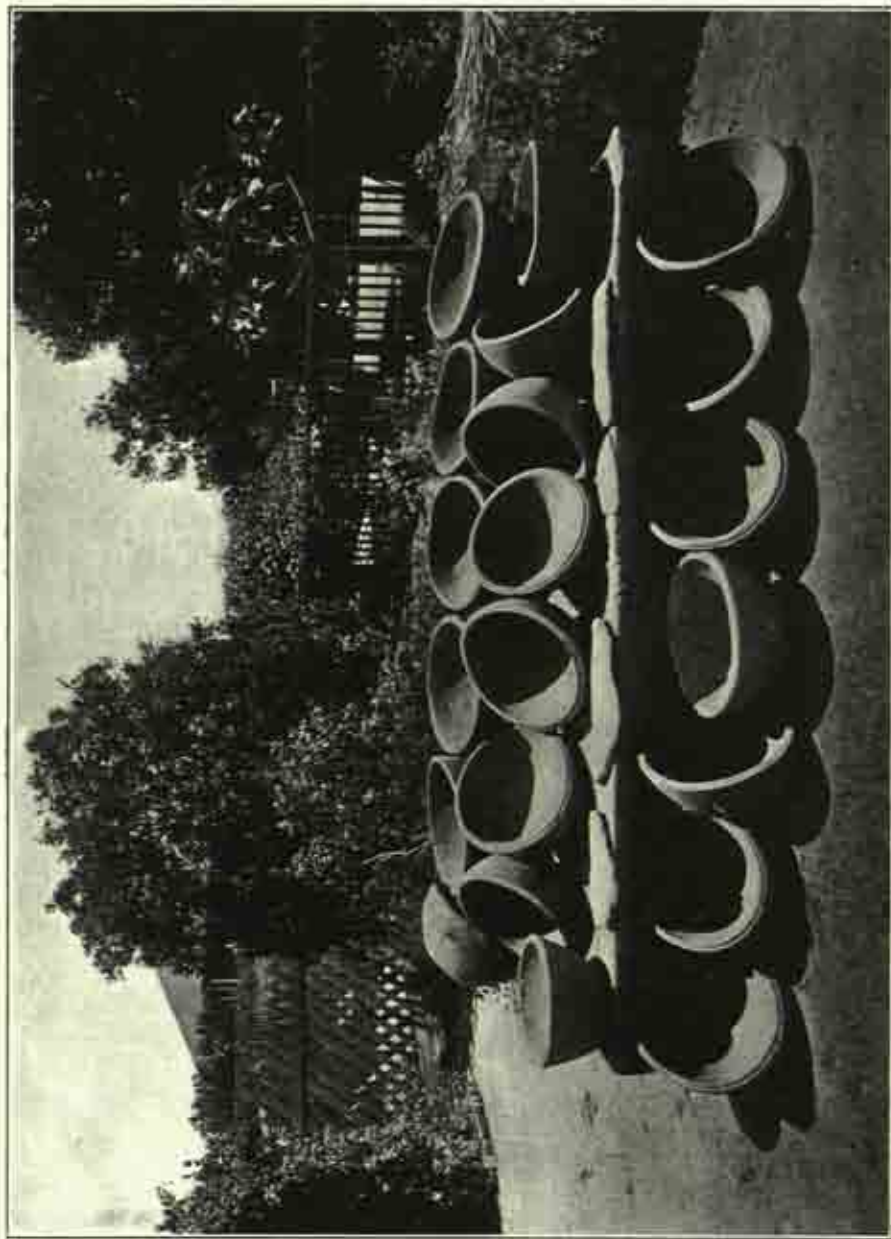
Mr H. W. Hunt, of San Fernando, California, has been tilling for several years the site of an old Indian village, and in doing so has unearthed fragments of not fewer than thirty Indian bowls, but no whole specimen. A short time ago, while plowing, he encountered a stone, and in digging it out discovered a cache of twenty-one sandstone bowls (see plate XL) carefully packed together in a space not exceeding four by five feet. On Mr Hunt's invitation I personally examined the contents of this interesting cache, finding the bowls quite symmetrical and all except one in perfect condition.

These utensils measure about 10 inches in greatest diameter, and from 7 to 10 inches across the bottom; they are about $1\frac{1}{4}$ inch in thickness at rim. A shallow groove is cut in the edge of the rim of each vessel, in which shell beads are set in asphaltum. About midway in the inside of one of the bowls a series of holes, about one-fourth of an inch in depth and diameter, is cut, and in each of these holes a shell bead is set in asphaltum. These inset beads represent the only attempt at ornamentation.

After carefully examining the field in which these vessels were found I reached the conclusion that the thirty broken bowls indicated the former occupancy of the site by a village of considerable size, and that they had been broken by an enemy rather than through use. I was led also to the belief that the villagers had been killed and many of their vessels destroyed, but that the predatory enemy had failed to find the cache of bowls, which had been secreted by their owners in fear of such an attack.

This conclusion was reached in view of the experience gained from the examination of many village sites in California. On one occasion, at a site south of San Jacinto mountain, I discovered

¹ As this paper is going to press, word is received of the unfortunate death of the author at his home in South Pasadena, California, on November 14. — EDITOR.



STONE BOWLS FOUND IN A CACHE IN SOUTHERN CALIFORNIA

twenty-five stone mortars, within the radius of a mile, all of which had been broken by violence, evidently by an enemy for the purpose of depriving the villagers of an important means of preparing food. Beside these mortars I found a slab of green talc, about 8 by 15 inches, and three slabs of sandstone of about the same width and length and $1\frac{1}{4}$ inch in thickness. Fragments of similar sandstone slabs have been found near the same site, but no pestles or other artifacts that had not been broken, a circumstance that would seem to indicate that everything had been either stolen or deliberately destroyed.

SOUTH PASADENA,
CALIFORNIA.

A PIMA-MARICOPA CEREMONY

By HERBERT BROWN

The Harvest or Corn festival of the Pima and the Maricopa Indians, known to them as *Pan-nee-ch*, or Wild Pastime, is no longer observed by them, nor do I know that it has been observed for the last twenty-five or thirty years. Although known as a harvest festival it was indulged in on all important occasions to the extent of one or more times a year. Any event of note in tribal life was generally so celebrated—an abundant harvest; a successful raid against the Apache; the killing of any of the many predatory bands of renegade Indians which at that time infested almost all sections of the country. Whatever the occasion, the festival was the signal for a great gathering. I was told that at one time there were no fewer than 4,000 Indians present—Pima, Maricopa, and Papago. I can not now recall the reason for the celebration and my notes fail to aid me in the matter.

These celebrations invariably took place in the mesquite forest north of the old Casa Grande ruins, south of the village of Blackwater on the Gila. A circle of ground, some half an acre in extent, was cleared of underbrush and logs. A ridge of loose earth eight or ten inches high marked the exterior boundary of the circle. Near the center of the circle was a great heap of dry wood from which a fire, in the center, was kept continually burning. At a sufficient distance from the pile of wood a trench, about 8 feet long, 6 feet wide, and 4 feet deep, was dug for the accomodation of the musicians, some six in number, three of whom beat drums and three rasped the bottoms of upturned flattish baskets upon which had been spread a layer of wax, an exudation from the mesquite. This when rubbed with a bone produced a sound somewhat between a squawk and a shriek. The drums were made of cottonwood logs carefully burned out, over each end of which was stretched a piece of half-tanned deerskin. The musicians kept time to a tune that

varied only according to the intensity of the requirements; they were in place and at work some time before the performance commenced. At a given signal the music stopped and two of the tallest and most athletic young Indians walked into the ring. They were naked save for a strip or thong of buckskin about the loins which was used for the purpose of binding to them wooden phalli. These instruments were about six or seven inches long and so bound that they stood erect from the bodies of the wearers. Each man in his right hand carried a large stone phallus, twelve or fourteen inches in length; the left hands were pressed tightly against their buttocks. Each took a position at the opposite end of the trench in which the musicians sat. After regarding each other for a time, the one nearest the fire said, "We are here." The other made answer, "Why are we here?" The first replied, "You will learn soon." Each then planted the stone phallus in an upright position at his feet and sprang out of the circle.¹

On his reappearance each man carried in his right hand a slender stick, about four feet long, tipped with feathers of the wild turkey. They were immediately followed by nine other young men, all naked as the leaders and with wooden phalli bound against their bodies, but differing from the latter in having their bodies painted in alternate stripes of black and white. The leaders raised their wands and kept time with the music, which had recommenced on their return, and all sang in that low tone peculiar to Indians. With one in the lead the other ten danced in pairs. After circling the fire several times, the last pair dropped out and squatted in a half sitting posture near one of the stone phalli. At each successive turn two more would be similarly seated, six circling one emblem and five the other. At the appointed time the sixth man sprang erect with a yell and stood behind the musicians, which place and position he occupied during the remainder of the ceremonies. The other ten sprang erect in pairs, that is one from each group, and as they met they went through the various forms of men and animals in the act

¹ Interesting in this connection is the finding by the Hemenway Expedition in the prehistoric pueblo ruins of the Salado valley, within the Pima country in southern Arizona, in 1887-88, of several phalli, usually of tufa, although not so large as those here described. — EDITOR.

of copulation. This was continued, for probably half an hour or more, to the delight and approval of the interested mass of half-naked humanity that packed the outer edge of the circle. The actors then disappeared as suddenly as they had come, with the exception of the man standing erect behind the musicians. In a few minutes they again returned, minus the wooden phalli but naked as before except for a strip of buckskin or of trader's calico thrown across the shoulders. The two leaders continued to keep time with their feather-tipped sticks, while the other eight gathered handfuls of earth and threw it on one another, all the time singing and dancing around the fire, then jumped through the blazing mass, circled, and danced again. This last performance however was more of a run than a dance, and more of a yell than a song. It was repeated five or six times. At the end of the last round the two leaders separated and stood each by one of the two stone phalli. After regarding each other for a few moments in silence, they seized the two emblems and ran out of the ring. The other eight followed in single file, hopping one after the other in toad-like fashion. As they passed, the man standing behind the musicians threw a double handful of earth on each. He then disappeared. After this all who wished passed into the circle and danced as long as they pleased.

YUMA,
ARIZONA.

THE FIFTEENTH INTERNATIONAL CONGRESS OF AMERICANISTS

By GEORGE GRANT MACCURDY

The Fifteenth International Congress of Americanists was held in the Parliament building, Quebec, September 10th to 15th, 1906. About 250 members, active and associate, were in attendance, and the local interest in the proceedings was very gratifying. The Congress meets every two years, the places of meeting alternating between Europe and the Western Hemisphere. The Quebec Congress had a local coloring all its own, due to the presence of so many missionaries from various parts of Canada, whose contributions on the tribes among whom they are laboring were of special interest.

England was represented by Drs A. C. Haddon, of Cambridge, and D. Randall-MacIver, of Oxford; France by Professor Léon Lejeal, of the Collège de France, and Comte de Perigny; Germany by Professor and Mrs Eduard Seler and Dr Paul Ehrenreich, all of the University of Berlin; Mexico by Señor Leopoldo Batres, Conservator-general of the Archeological Monuments of the Republic, and Señor Santiago Sierra. The United States was not so well represented as it should have been, those present coming chiefly from Harvard and Yale universities, New York, Philadelphia, and Washington. Canadian interest and pride in the Congress were shown by the presence of many missionaries, as has been said, and by the loyal support of Quebec. The program included 91 papers, but only about half of these were read.

The Congress was formally opened on Monday morning by Sir Louis A. Jetté, Lieutenant-Governor of the Province of Quebec, and addresses of welcome were made by representatives of the Government and of the City of Quebec. The reading of papers began on Monday afternoon and continued until noon on Saturday following.

The opening paper by Professor Rivard was on the "French Dialects in Canada." Canadian French is neither classic French, corrupt French, nor a homogeneous patois, but a mode of speech both regional and uniform with the characters of the various *patoises* incorporated into the popular French tongue of northern France. Professor A. F. Chamberlain's first paper was on a similar subject—"The Vocabulary of Canadian French." He discussed Indian loan-words, English loan-words, words French in form but having meanings peculiar to Canada, old French words obsolete in France but preserved in Canada, French dialect words surviving in Canada, "Canadianisms" proper (*i. e.*, words, etc., created *de toute pièce* in Canada), the language of the fishermen, etc., of the Gulf of St Lawrence, the speech of the Acadians, of the *habitants*, foresters, lumbermen, etc., the language of the *voyageurs*, *coureurs des bois*, hunters, trappers, etc., of the interior, and that of the settlers in the great Northwest. The vocabulary exhibits in marked fashion the influence of environment.

Professor E. L. Stevenson's two interesting communications were on the subject of cartography and both were illustrated by means of large photographic reproductions of early maps. In "Comparative Fallacies of Early New-World Maps," a chart was exhibited to show, by means of superposition, the more striking fallacies of the first maps. Error in location is often strangely excessive as to both latitude and longitude, the reasons for this being sometimes obvious but often obscure. Very many of the most important early maps of the New World now known have been brought to light within the last few years. The most recent discovery is a fine specimen of the work of Hondius. A facsimile of this was exhibited for the first time.

There was an evening session on Monday at which two valuable papers were presented, both being illustrated by numerous lantern slides. Señor Leopoldo Batres described his excavations at Teotihuacan, and Father Jones identified the sites of Huron and Petun villages at the time of the Récollet and Jesuit missions, 1615-50.

Tuesday's sessions were devoted to Mexico and Yucatan, the Isthmus and South America. Professor Seler described "Two Specimens from the Collection Sologuren, Oaxaca," exhibiting

colored drawings of the same. M. Alphonse Gagnon sought to trace the origin of the civilization among the ancient races of Mexico and Central America. In his opinion it came from India or Chaldea by way of Ceylon, Indo-China, Java, and Polynesia.

Dr Alfred M. Tozzer pointed out "Some Survivals of Ancient Forms of Culture among the Mayas of Yucatan and the Lacandones of Chiapas." The Maya of to-day are Catholics, but they still retain, in a modified form, a considerable number of their old beliefs and customs. The Lacandones, being comparatively free from outside influence, have preserved many of their ancient customs. These include pilgrimages to ruined cities, where they offer incense to the gods. An elaborate ceremonial of the renewal of the incense burners is clearly a survival of a rite mentioned by Landa. Idols are anointed with blood drawn from the ear. Names and attributes of deities recorded by early Spanish writers have survived, but no knowledge of the hieroglyphic writing exists.

The paper by Dr George Grant MacCurdy dealt with "The Armadillo Motive in the Ancient Ceramic Art of Chiriqui." In the collection belonging to the Yale University Museum, the treatment of the armadillo includes all the steps from realism on the one side to highly conventionalized forms on the other. It appears as supports for tripods, as a shoulder ornament on vases, as handle decorations, and as ornamental features on the necks of vases. In many instances no trace of the armadillo as a recognizable unit remains. In its stead, symbols representing the foot, eye, tail, or carapace are employed either separately or in pleasing combinations. Tail or carapace symbols are often carried in meander around the necks of vases, each angular space being marked by a foot, or an eye symbol. The armadillo is so dominant a factor in the so-called *biscuit* or *terra-cotta* group of pottery that the latter might well be called the *armadillo* group instead. A study of the series leads one to the conclusion that many purely decorative motives had their origin in some life form or in elements thereof. In Egypt it seems to have been the lotus; in Chiriqui it was preëminently the armadillo.

Professor Lejeal presented a joint communication by himself and M. Eric Boman on "The Calchaqui Question." Their con-

clusions, very different from those of Professor Juan B. Ambrosetti, are that the Calchaqui culture is closely related to the Andean culture with its center in Peru.

Miss Adela Breton, of Bath, England, offered two papers. Her "Note on Xochicalco" was read by Dr Gordon, and her excellent copies of the wall-paintings of Chichen Itza were exhibited by Dr Tozzer, who followed with his own notes on "The Maya Language Spoken in Yucatan," in which he pointed out the occurrence of an inclusive and an exclusive first person in these dialects.

Dr George B. Gordon's subject was "The Serpent Motive in the Ancient Art of Central America and India." This motive is so persistent in Central American and Mexican art as to form not less than three-fourths of all the ornament. The original model was the rattlesnake. In the art of India, the serpent occupies a position scarcely less prominent than that found in Central America; but the serpent image undergoes fewer changes that would tend to disguise its identity or affect the stability of the type. Dr Gordon's conclusions are that the resemblances are striking rather than profound, and not such as to justify a belief in an intimate relation between the cultures of the two countries or a historic connection between the two decorative systems.

One communication by Professor Seler has already been mentioned. He presented four more on Friday morning, all of them accompanied with drawings or lantern slides. The figures on the two reliefs from Huilocintla, District of Tuzpan, State of Vera Cruz, represent Quetzalcoatl torturing himself by passing a thorny stick through a hole in his tongue. Under the title of "Studies among the Ruins of Yucatan," Dr Seler described the *maison du Nain* at Uxmal, which he believes to have been a temple dedicated to the divinity of the planet Venus. Professor Seler's other contributions were on "Parallels in Mayan Manuscripts" and "The Reliefs in the Temple of the God of Pulque at Tepoztlan, State of Morelos, Mexico." He gave also brief abstracts of a paper by Dr Karl Sapper, of Tübingen, on "Choles and Chorties," and of one by Dr W. Lehmann of Berlin on the "Ancient Mexican Mosaics in the Berlin Museum of Ethnology."

Father J. Jetté's contribution on "The Social Condition of the

Téna," an Alaskan tribe living on the Yukon river, was read by Father Turgeon of Quebec. The Rev. John W. Chapman of Anvik, Alaska, read some interesting notes on the Athapaskan tribe of Anvik, giving texts of traditions with translations, and a detailed description of the Festival of Masks as celebrated during the winter of 1905.

Dr Roland B. Dixon gave the results of his studies on the "Linguistic Relationships within the Shasta-Achomawi Stock," in which it was shown that the Shasta group includes five well-differentiated languages — the Shasta, Achomawi, Atsugewi, New River, and Konomihu. Their affinity was demonstrated by lexical comparisons, and a number of regular phonetic changes were traced.

Wednesday morning's session included two valuable contributions to the subject of Indian music. The first of these, by Dr Ernest Gagnon, dealt with "Music among the Indians of Canada," and the second, by Miss Natalie Curtis, related to "Indian Song and its Place in the Life of the Indian." In order to illustrate its character and beauty, Miss Curtis sang, to the delight of the audience: (1) *Hogan Biyin*, the "holy song" of the Navahos; (2) *Iruska*, a war-dance song of the Pawnees; (3) *Ockaya*, corn-grinding song of Zuñi women; (4) *Pumuch-Tawi*, lullaby of the Hopi pueblos; and (5) *Poli-Tiwa*, butterfly-dance song of the Hopi pueblo of Oraibi.

Keen interest was manifested in "A Key to the Industrial and Social Evolution of the American Indian," by Mrs Charlotte Osgood Mason, and "An Effort to Encourage Indian Art," by Miss A. de Cora, whose experiences as a teacher at the Carlisle School were set forth.

Dr Ales Hrdlicka opened Thursday's session with "A Résumé, from the Standpoint of Various Skeletal Remains that Suggest, or are Claimed to Represent, an Early Man on this Continent." It was a careful examination, viewed from the physical standpoint, of the merits as to antiquity of the Calaveras skull, Trenton skull and bones, Lansing skeleton, and the fossil human bones from Florida, and included the first detailed report concerning the Florida specimens. Dr Hrdlicka would not assign any of the remains in question to a remote past. They belong anatomically to the living type of Indian.

Dr N. E. Dionne gave translations of the Lord's Prayer into various Indian tongues of Canada and pointed out that the Indian takes great pains to conserve the purity of his native language.

Father Morice read a paper on "The Position of Woman among the Tinné," which was followed by Father Hugolin's paper on "L'idée spiritualiste et l'idée morale chez les Chippewas."

In his discussion of "The Principles of Government among the Indians of Canada," Dr J. E. Roy noted the existence of hereditary castes among certain tribes; and touched upon their ideas of law, justice, ownership of the soil, rules of the chase, marriage, social condition of woman, etc.

Of special moment and timely was the discussion of "Ethnological Problems in Canada," by Professor Franz Boas, who pointed out many problems yet to be solved. The linguistic subdivisions of the Algonquian and Athapascan tribes are not sufficiently known; and extended collections of linguistic material from the Salish and the Nootka, as well as from the northern branches of the Kwakiutl of British Columbia, should be made. There are still many obscure points relative to the distribution of the Cree tribes. The Athapascan tribes of the Mackenzie river offer many interesting problems, as do the North Pacific Indians. The relationship between the eastern and the western Eskimo and their ancient distribution northward require further study. Archeological investigation of the extreme northwestern Arctic region is of special importance if we are to determine the influence of the Indian and of the Asiatic cultures on the western Eskimo.

"Ponca Grammar" was the subject of a second paper by Professor Boas. The Ponca are a branch of the Siouan linguistic stock. Ponca texts, published by the late James Owen Dorsey, furnished material for a grammatical discussion which included the phonetic system, prefixes, suffixes, the articles, demonstratives, and pronouns.

A paper by Father Pacifique dealt with "The Characteristic Traits of the Micmacs," among whom he has labored as a missionary. While it never has been numerous, the tribe is in no danger of becoming extinct. The Micmacs are peace-lovers and faithful to the French, who were the first whites known to them.

Dr J. S. Schmidt's communication on "The Chase as Practised among the Indians of Anticosti" was read by Dr Dionne. "The Genius of the Algonquian Language" was discussed by Father George Le Moyne. His conclusions were that the sounds employed by the Algonquian are more like the French than the English. From the phonetic viewpoint, Algonquian is more pleasing to the ear than are the Eskimo and other languages of the North.

"The Diffusion of Culture in the Plains of North America" was discussed by Dr Clark Wissler. Dependence on the buffalo, the use of skin tents, the dog-travois, absence of weaving, use of the circular shield, occurrence of the sun dance, and a peculiar style of decorative art, all characterize the plains culture. The Plains Indians may be divided into three groups: those of the Missouri, those of the plateaus, and those of the Great Plains. The ceremonials of all have certain traits in common.

Dr Charles Peabody gave a résumé of a communication from Dr George F. Kunz relative to "The Heber R. Bishop Collection of Jade and the Catalogue Illustrating the Same." Dr Walter Hough performed a similar service for Mr James Mooney, giving a summary of the paper by the latter on "The Cheyenne."

Dr Hough presented two papers of his own. The first of these was based on "The Field-work of the Gates Expedition of the U. S. National Museum to the Head-waters of the Gila-Salt and San Francisco Rivers, in New Mexico and Arizona." Numerous lantern slides gave illustrations of the ancient pueblos, caves, cliff-dwellings, etc., of this region.

Dr Hough's second theme was "Two Great Culture Plants," in which he attempted to show the intimate and even essential relationship between human culture and the vegetal environment. The two plants selected were the palm and the agave, the latter influencing American (Anahuac) civilization especially.

A second paper by Dr Gordon on "An Engraved Bone found in an Indian Grave at Cincinnati, Ohio," is to be noted. The specimen in question was found in 1801. The engraving is believed to be a representation of the puma.

Other papers read were "The Iroquois of Caughnawaga," by the Abbé J. G. Forbes; "The Language of the Tinné," by Father

Legoff; and "Cheyenne Grammar," by Rev. Rudolph Petter. In the absence of the Abbé Guindon, his communication on "Poetic Adaptations of Algonquian Myths" was presented by Father Dupaigne, who also read for Father Rousseau the latter's very interesting contribution relative to the "Manners and Customs of the Hochelagas of the time of Jacques Cartier."

The following papers were read by title:

M. L'ABBÉ GOSSELIN: Quelques notions sur les Sauvages du Mississippi au commencement du XVIII^e siècle, d'après les lettres des missionnaires du temps, conservées dans les archives du Séminaire de Québec.

M. LE BARON M. DE VILLIERS DU TERRAGE: Un rapport du Chevalier de Kerlérec, gouverneur de la Louisiane française (1758).

DR JULES HUMBERT: Les plans de colonisation espagnole au Vénézuéla et en Guyane.

DR C. F. NEWCOMBE: The Haida Indians of Queen Charlotte Islands.

FATHER E. DAVID: Les Montagnais du Labrador et du Lac Saint-Jean.

DR BERTHOLD LAUFER: (a) The Introduction of Maize into Eastern Asia. (b) Note on the Introduction of the Peanut into China.

MR GEORGE G. HEYE: Exhibition of Archeological Specimens from the Northwest Coast of Ecuador.

M. LE COMTE DE CHARENCEY: Deux contes recueillis chez les Indiens d'Oaxaca par M. Belmar.

REV. LEOPOLD OSTERMANN: The Navaho Noun.

DR GEORGE A. DORSEY: (a) Presentation of a Pawnee Star Chart. (b) A Preliminary Account of the Morning Star Sacrifices among the Pawnees. (c) The Social Organization of the Skidi Pawnee.

MR GEORGE H. PEPPER: Navaho Blankets.

FATHER BONALD: Étude sur la tribu des Cris.

FATHER HUGONARD: Les Cris des Prairies.

MISS MARTHE W. BECKWITH: Dance Forms of the Moqui and Kwakiutl Indians.

M. L'ABBÉ E. GAUVREAU: Religion des Dakotas et des Assiniboines.

DR CYRUS THOMAS: Some Suggestions in regard to Primary Indian Migrations in North America.

DR A. L. KROEBER: The Ceremonial Organization of the Plains Indians of North America.

DR P. E. GODDARD: Assimilation to Environment as Illustrated by Athapaskan Peoples.

M. L'ABBÉ A. MANTEL: Étude de philologie comparée sur l'affinité des langues algiques avec les langues indo-européennes.

PROFESSOR J. DYNELEY PRINCE: A Micmac Manuscript.

MR WALDEMAR JOCHELSON: The Former and Present Underground Dwellings of the Tribes of Northeastern Asia and Northwestern America.

DR WILLIAM JONES : Death and Funeral among the Sauk and Fox.

MR JAMES MOONEY : The Decrease of Indian Population.

Étude sur les Abénakis de la Province de Québec, par un Abénaki.

MISS CONSTANCE GODDARD DUBOIS : (a) Diegueño Myths and their Connection with those of the Mohaves. (b) Two types of Diegueño Religious Dances, the Old and New, in Southern California.

M. JULES GEDDES : L'importance de l'unité phonétique.

MR J. N. B. HEWITT : Proposed International Phonetic Conference to Adopt a Universal Alphabet.

MR THEOBERT MALER : Présentation de photographies du monument du Yucatan.

Members of the Congress received gifts of various publications. The Government of Quebec presented two volumes, one on *Noms géographiques de la province de Québec et des provinces maritimes empruntés aux langues sauvages*, by M. Eugène Rouillard, and the other on *Les noms géographiques de la province de Québec*, by Dr Pierre-Georges Roy. The Government of Ontario gave copies of its Annual Archaeological Report (1905), the work of many contributors, especially of Professor Boas. Señor Leopoldo Batres presented a memoir relative to the explorations undertaken by the government of Mexico at Teotihuacan. Four other publications by Señor Batres, dealing chiefly with work in governmental inspection and preservation of archeological monuments, were distributed. The University of Pennsylvania dedicated Volume II, part I, Transactions of the Department of Archeology, Free Museum of Science and Art, to the Congress; and the American Anthropological Association sent a review of the "Recent Progress in American Anthropology" since the New York Congress of October, 1902.¹

Professors F. W. Putnam and John C. Merriam gave copies of their recent publications on "Cave Explorations in California."² Other papers presented were by Professor Lejeal on the Congress of Stuttgart; Mr C. P. Bowditch on "Maya Studies"; Mrs Zelia Nuttall on "Unsolved Problems in Mexican Archeology";³ and Mr Francis La Flesche on "The Medicine Man."

On Wednesday afternoon Lady Jetté gave a garden party at

¹ Reprinted from the *American Anthropologist*, July-September, 1906.

² Ibid., April-June, 1906.

³ Ibid., January-March, 1906.

Spencer Wood, official residence of his Honor, the Lieutenant-Governor of the Province of Quebec; and on Thursday evening there was a reception at the University of Laval, given by the rector and professors. The Mayor's soirée in honor of the Congress was held at Kent House, Montmorency Falls, on Friday.

Among the resolutions, the following was passed: "The International Congress of Americanists has learned with great regret that Dr Albert S. Gatschet has been compelled to give up the continuation of his important investigations which he has carried on for many years, and expresses its admiration for the great services which he has rendered to Americanistic studies, particularly to those of Indian languages and of the ethnography of North America."

At the final session on Saturday morning, under the presidency of Dr Robert Bell, it was voted to hold the next Congress at Vienna in 1908. Many members remained to take part in the excursions of Saturday afternoon, Sunday, and Monday.

Among those who contributed largely to the success of the Quebec meeting, the services of Mgr J. C. K. Laflamme, Professor Franz Boaz, Dr N. E. Dionne and M. Alphonse Gagnon deserve special mention.

YALE UNIVERSITY,
NEW HAVEN, CONNECTICUT.



Alfredo Chavero

Alfredo Chavero

Señor Licenciado Don Alfredo Chavero died in the City of Mexico, October 24, 1906.

Señor Chavero was beyond question the dean of Mexican archeologists; but not only as an archeologist was he prominent—he was a lawyer of eminence, an active politician, a man of affairs, a brilliant orator, and a successful writer.

Born in the City of Mexico, February 1, 1841, Alfredo Chavero began the active practice of law in his native city at the early age of twenty years, and in the year of his majority, 1862, was elected a deputy to Congress. He was a liberal in politics, and was associated with President Juárez during the period of the French invasion of Mexico under Maximilian. After the fall of the empire, in 1867, he entered journalism, thus beginning his career as a man of letters. Not being in sympathy with the administration of President Lerdo de Tejada, he went to Europe, returning when Lerdo de Tejada's term of office ceased, and serving under the new administration as sub-secretary to the Minister of Foreign Affairs. In 1871 he became governor of the Federal District, and for many years, until his death, was a member of the Chamber of Deputies, over which he presided at various times. He was long regarded as the most brilliant speaker in that body.

Notwithstanding the demands of his political offices, Señor Chavero found time to devote attention to numerous educational, administrative, and judicial organizations. He was professor of administrative law in the School of Commerce, a member of the commission that formed the commercial code, a director of the School of Commerce and of the College of Peace, Comptroller of the National Bank, a member of the permanent Arbitration Board at the Hague, a member of the Pan-American Congress held in

Mexico, the perpetual secretary of the Statistical and Geographical Society of Mexico for more than forty years, the director of the National Museum of Mexico in 1903, and the holder of various other positions of national importance. Señor Chavero was a founder of the American Anthropological Association, and a member of the editorial board of the *American Anthropologist* from the time it became the Association's official organ. He was also a member of the Société des Américanistes de Paris and of the American Antiquarian Society, and a corresponding member of the Real Academia Española de la Historia. He was president of the Mexican delegation to the Thirteenth International Congress of Americanists held at New York in 1902, and was one of the speakers on the subject of archeology at the International Congress of Arts and Sciences held at the Saint Louis Exposition in 1904. On both of these occasions he made many warm friends in this country by his genial and courteous manner.

Notwithstanding the many duties which Señor Chavero was called on to perform as a leading man of affairs, he found time to exercise his talent as a historian and an archeologist, and even to enter the field of dramatic literature. He was among the first students of modern times to make a careful comparative study of the Mexican calendar system, and it is due to his activity that the works of Duran, Ixtlilxochitl, and Camargo have been published. The following is a fairly complete list of Señor Chavero's anthropological publications:

Calendario Azteca. (Appendix to Diccionario Geográfico Estadístico de la República Mexicana, Tomo III, entrega 108, Mexico, 1875.)

Calendario Azteca: Ensayo Arqueológico. 2d ed., Mexico, 1876.

Sahagun, Estudio. Mexico, 1877.

Explicación del Códice Geroglífico de Mr Aubin. (Appendix to Historia de las Indias de Nueva España, by Duran, Tomo II, Mexico, 1880.)

La Piedra del Sol: Estudio Arqueológico. (Anales del Museo Nacional, Mexico, 1880-1901.)

Mexico a Través de los Siglos. Tomo I, Historia Antigua y de la Conquista. Barcelona, 1884.

Antigüedades Mexicanas. (Text, with an explanation of the Lienzo of Tlaxcala, Mexico, 1892.)

Los Dioses Astronómicos de los antiguos Mexicanos. (Appendix to Interpretación del Codice Borgiano, by J. L. Fabrega. Anales del Museo Nacional, Mexico, 1900.)

Pinturas Jeroglificas. Two parts. Mexico, 1900-01. (The original codex reproduced by Señor Chavero in Part 2 was presented by him to the American Museum of Natural History at the time of meeting of the International Congress of Americanists at New York, 1902.)

Calendario ó Rueda del Año de los Antiguos Indios. Estudio Cronológico. Mexico, 1901.

Calendario de Palemke: Los Signos de los Dias. Mexico, 1902.

Palemke Calendar: The Signs of the Day. (Transactions International Congress of Americanists, New York, 1902.)

Calendario de Palemke: Los Signos de las Veintenas. (Anales del Museo Nacional, Mexico, 1903.)

Apuntes Viejos de Bibliografía Mexicana. Mexico, 1903.

El Monolito de Coatlinchan. (Anales del Museo Nacional, Mexico. Also separate edition, 1904.)

Bibliographic Notes on Morfi, Vega, Tovar, Veytia. (Anales del Museo Nacional, Mexico, 1903, 1904, 1905.)

Editor of —

Obras Historicas de Don Fernando de Alva Ixtlilxochitl. Two volumes. Mexico, 1892.

Historia de Tlaxcala, by Camargo. Mexico, 1892.

American students always found it a great pleasure to meet Señor Chavero, especially in his home in Mexico, surrounded by the books relating to Mexican history which he loved and knew so well. In his death American archeology and early history have lost one of their oldest and most devoted workers.

MARSHALL H. SAVILLE.

BOOK REVIEWS

Traité des variations des os de la face de l'homme, et de leur signification au point de vue de l'anthropologie zoologique. Par M. LE DR A. F. LE DOUBLE. Paris: Vigot Frères, 1906. 8°, xx, 471 pp., 163 figs.

The present work of Professor Le Double is one of a series by the same author dealing with variation. Like the preceding volume on variations in the bones of the cranial vault, already reviewed in these pages (vol. vi, no. 5), this represents the first important effort toward a résumé of the entire subject, supplemented with personal observations.

In his preface the author enumerates, with some superfluity, his services to science. The treatment of the variations of the nasal bones occupies 37 pages of the text; of the lachrymal bone, 34; inferior turbinated, 8; vomer 8; palate bones, 26; malar, 52; superior maxilla, 141; and inferior maxilla, 71. Pages 379-408 comprise Dr Le Double's conclusions, and pages 411-442 contain additions to his previous work on cranial variations.

The volume is well worth perusal, or rather consultation, although the ever-present *ego* interferes somewhat with the reading. Facial variations are classed, on the basis of their etiology, into (1) reversive, (2) those due to ossification in an aponeurosis or a ligament, (3) those due to vascular, nervous, tendinous, or glandular pressure, (4) those due to a retardation or insufficiency of ossification, (5) those that are the effect of physiological or pathological dystrophy, and (6) monstrosities. The discussion of the variations of each bone proceeds according to a definite sequence, which facilitates reference to any particular feature; and the numerous bibliographical references will prove of service to the student.

Among the defects of the work are the incomplete treatment of certain features, and at least in some cases a lack of thoroughness in the digestion of the material. The arguments of the author also are not always fortunate; thus, for instance, the teeth of the Australians (p. 215, 403) are not "enormous," compared with those of whites. Finally, the fulness of the bibliographical references, and many of the illustrations, leave much to be desired.

The next work promised by Professor Le Double will be devoted to a study of the variations, through excess, of the hair of the human body.

A. HRDLICKA.

Tribes of the Columbia Valley and the Coast of Washington and Oregon.

By ALBERT BUELL LEWIS. *Memoirs of the American Anthropological Association*, Vol. 1, part 2. Lancaster, Pa.: The New Era Printing Co., 1906. 8°, 56 p.

The ethnology of no region of the Pacific coast north of Mexico has been more neglected than that embraced in the states of Washington and Oregon. Thanks to the British Association for the Advancement of Science, the American Museum of Natural History, the Bureau of American Ethnology, and the individual work of Krause, we are in possession of a number of extended treatises on the tribes of British Columbia and Alaska; while California has been the subject of Powers' pioneer work, and of notable reports within the last few years by Kroeber, Dixon, and Goddard. In spite of excellent detail work by Gibbs, Eels, Gatschet, Boas, and Farrand, no such exhaustive treatises exist however for the intermediate region. All the more interest and importance therefore attach to the paper before us, which at once puts the student in touch with all the scattered references to the people of this area and through its copious bibliography and footnotes enables him to refer to the original sources at pleasure.

The general results of Dr Lewis' investigation are about such as might have been anticipated from what we know of the tribes north and south. He finds, as in the region immediately to the north, that the main distinction of culture is between the coast and the interior separated by the Cascade mountains, and that each resembles the corresponding area in British Columbia and Alaska, minor variations being noted between Puget sound and the Columbia valley. In southern and southwestern Oregon however Dr Lewis finds two smaller cultural areas, intermediate between the cultural area of California and those of the interior plateau and the coast respectively. Finally, and perhaps most interesting of all, he finds a small independent cultural area in the Willamette valley, in the region occupied by the Kalapuya tribes. This, while within easy reach of the true coastal culture, resembles rather that of the interior, thus showing a striking conservatism on the part of the Kalapuya people.

Not only has Dr Lewis in this treatise saved other ethnologists an immense amount of work, but he has laid an indispensable basis for further field explorations. The comparative meagerness of our knowledge of these tribes after so thorough an investigation also points, as Dr Lewis notes in concluding, to the imperative necessity for immediate field investigations of the few fast-decreasing tribal remnants in this corner of the United States. It is to be hoped that some of our institutions will awake to the need while there is yet time.

J. R. SWANTON.

The Universal Kinship. By J. HOWARD MOORE, Instructor in Zoology, Crane Manual Training High School, Chicago. Chicago: Charles Kerr & Co., 1906. 8°. 329 p.

As its name implies, the main thesis of this book is the absolute community in origin and continuous interdependence of all life. The author makes the usual comparison between man and other animals on the physical, intellectual, and moral sides, and proves—as has been done many times before—that there is no impassable gulf between them. He spares no opportunity to denounce the overweening self-conceit of the animal man in arrogating to himself a higher place in creation than his “humbler brothers,” as well as his thoughtlessness and cruelty in dealing with them.

If Mr Moore's work helps in any way toward a kinder treatment of our animal friends and servants, it is in so far commendable. Its failing, as in the case of so many works of similar nature, is that in sweeping away impassable gulfs it ignores real differences. Thus, after we have proved that no impassable gulf exists between man and the other animals, we still have to admit that there is a difference between them, nor can this difference be swept away by anatomical comparisons and psychological investigations. It simply is. In the same way, after we have shown that species in general are not immutable, we have not proved thereby that they are not different, and the nature of the difference between the snail and the snake, the wolf and the worm, is just what we want to know. We must also raise a protest against the extremes to which the biological brotherhood idea tends to be carried. We wish our “humbler brothers” well, but it will be some time before we see the duty or the expediency of sitting down to lunch in company with centipedes and tigers, or of keeping house from choice with cockroaches and rats.

J. R. SWANTON.

The Northern Maidu. By ROLAND B. DIXON. Bulletin of the American Museum of Natural History, Vol. xvii, part iii, pp. 119-346. New York, 1905.

Much concerning the aboriginal life and customs of a Californian people, the remnant of whom are rapidly being merged into civilization, has been rescued in the nick of time by the efforts of Dr Dixon, made possible by the generosity of Mr Archer Huntington. The Maidu, like the inhabitants of the northwestern portion of California, were but slightly touched by Spanish influence, and the explorers and trappers who passed through their territory did little to alter the primitive state in which they

lived. It was not until the discovery of gold in 1849 that the destruction of the primitive habits and culture of the Maidu began. Not only may the world congratulate itself that sufficient interest has been aroused to accomplish this work while there are those of the Maidu still living who remember the period before white occupancy, but it may count itself fortunate that this task has fallen into the hands of a student of sufficient sympathy, patience, and breadth of view to cover the whole field of interest and to unearth the details which are so essential to the proper understanding of native peoples.

After a brief geographical and historical survey, Dr Dixon devotes about a hundred pages of text and pen drawings to a description of the material culture of the Maidu. He has classified the objects which they possessed according to the material of which they consisted—stone, cordage, basket materials, feathers, etc. Under clothing and personal adornment we are shown in drawings the snow-shoes and toilet articles used in the region. It is to be hoped that such straightforward and thorough statements of the facts concerning the wearing of objects which were a source of discomfort rather than comfort, the tattooing of the face, etc., may some time make possible an explanation of the purpose in social and sexual affairs which the rendering of one's self hideous really has.

The dwellings and dance houses are of the type prevailing generally in the central portion of California. The food supply, and weapons and means of defense, the two most important material factors which determine not only the density of the population but the very existence of a people, are given due attention.

At this precise moment, the account Dr Dixon gives us of the social organization of the Maidu and their practices at the birth, puberty, and death of individuals is especially welcome. The implements of war and chase were the private property of the men, the household utensils that of the women; but the land and streams, with the fish, deer, and vegetable products in and upon them were the property of small communities, the boundaries of whose holdings were carefully marked. The Maidu, in common with other peoples of the Pacific coast, have many strict taboos and ceremonies connected with child-birth, puberty, menstruation, and death. While some of these still await an adequate explanation, others are perfectly consistent with the belief the Maidu avow, in common with most primitive peoples, in a soul existing before the birth of the individual, capable of temporary separation from the body during life, and surviving after death, when, unless proper precautions are taken, it may linger about its former abode, bringing misfortune upon

the living. After its departure to the world of ghosts it may still be reached by means of gifts and vocal utterances. This latter belief has given rise among the Maidu to an elaborate and highly interesting ceremony in which annually many costly offerings are made to the dead.

The shamans among the Maidu are those who have attached to themselves certain spirits as helpers, and who are able in dreams to obtain from spirits and ghosts such information as may be in their keeping. These shamans are capable of both removing and restoring the soul, thus producing death or health at will. As is so generally the custom in North America, semi-material objects bearing the same relation to the real object that souls do to men are removed from the body of the sick by means of sucking.

The larger ceremonies of the Maidu, usually consisting in part of dancing, were held during the winter months. Of especial interest and importance is the secret society into which most boys were initiated during adolescence, the leaders of which were most influential in all matters pertaining to the interests of the people.

Dr Dixon finds diversity within this region increasing as he moves from the material objects to religious beliefs and practices, a thing quite true in other parts of the state. Indeed, he concludes that variety in culture is one of the most striking features of the region. Since this is the case such a detailed study and record of this people is most welcome.

P. E. GODDARD.

SOME NEW PUBLICATIONS

CODEx BORGIA. Eine altemexicanische Bilderschrift der Bibliothek der Congregatio de Propaganda Fide. Herausgegeben auf Kosten Seiner Excellenz des Herzogs von Loubat, Correspondirenden Mitgliedes des Institut de France. Erläutert von Dr. Eduard Seler. Band II. Berlin, 1906. 4°, 310 pp., pl. 29-76.

GERONIMO'S Story of His Life. Taken down and Edited by S. M. Barrett. New York: Duffield & Co., 1906. 12°, xxvii, 216 p., ill.

JUDD, MARY CATHERINE: Wigwam Stories told by North American Indians. With illustrations by Angel de Cora. Boston: Ginn & Co., 1906. 12°, ix, 278 p., ill.

MÜLLER, W. MAX. Egyptological Researches. Results of a Journey in 1904. Washington: Carnegie Institution, 1906. 4°, 62 pp., 106 pl.

SKEAT, WALTER WILLIAM, and BLAGDEN, CHARLES OTTO. Pagan Races of the Malay Peninsula. In Two Volumes. London: Macmillan & Co.; New York: The Macmillan Co., 1906. 8°, xl, 724; x, 855 p.

PERIODICAL LITERATURE

CONDUCTED BY DR ALEXANDER F. CHAMBERLAIN

[NOTE. — Authors, especially those whose articles appear in journals and other serials not entirely devoted to anthropology, will greatly aid this department of the *American Anthropologist* by sending directly to Dr A. F. Chamberlain, Clark University, Worcester, Massachusetts, U. S. A., reprints or copies of such studies as they may desire to have noticed in these pages. — EDITOR.]

GENERAL

- Ahlenius** (K.) Friedrich Ratzel och hans antropogeografiska lärobyggnad. (Ymer, Stockholm, 1906, xxvi, 36-57.) Sketches the scientific labors of Ratzel and his anthropogeographical theories, with notes on his chief publications.
- Bair** (J. H.) Education and medical advancement as precluding any further mental and physical evolution of the human race. (Univ. of Colo. Stud., Boulder, 1905, ii, 223-236.) Prof. B. argues that "all progress upward, so far as the individual is concerned, in bodily fitness and brain capacity, tends to be retarded by means of man's arbitrary arrangements in the form of education and science." New factors that will save the race are needed. Something can still be done in the way of developing sentiments and ideals along the lines pursued by Burbank in the vegetable world.
- Becker** (A.) Ein Pestsegen. (A. f. Religsw., Lpzg., 1906, ix, 290-291.) Discusses the Zacharius plague-prayer, + zia + dia + biz + sab + z + hgf + bfrs, used after the pest of 1547.
- Capitan** (L.) Le XIII^e Congrès international d'anthropologie et d'archéologie préhistoriques. (R. de l'Éc. d'Anthrop. de Paris, 1906, xvi, 212-216.) Brief account of proceedings at Congress held at Monaco, April 16-22, 1906. (See *American Anthropologist*, vii, no. 3, 1906.)
- Le Congrès international d'anthropologie préhistorique de Monaco. (Ibid., 261-282.) Résumés papers and discussions relating to the prehistoric in the region about Monaco—eoliths, Quaternary classification, African archeology, art of cave-man, transition from paleolithic to neolithic, origin of neolithic culture, protohistoric Mediterranean civilizations, Hallstatt and La Tène culture, etc. M. Montané exhibited some pre-Columbian remains from a cave at Sancti-Spiritus, in Cuba—of the skulls some are negroid, others Mexicanoid.
- et **Arnaud d'Agnel** (M.) Un curieux mode d'importation de silex taillés d'Orient en France. (Ibid., 69-72, 9 figs.) Treats of flints found in sacks of beans imported into France from Syria and other parts of Asia Minor. They are quite numerous and aid to the difficulties of exactness in silexology.
- von Duhn** (F.) Rot und Tot. (A. f. Religsw., Lpzg., 1906, ix, 1-23.) Treats of the collocation and contrast of "red and dead (death)" in folk-thought and in the ceremonies and rituals of various tribes and peoples of all ages and countries. Ancient red-painted coffin boards from the Mediterranean region, red swaddling-clothes for the dead in ancient Greece and New Zealand, red as death-color in India, painting skeletons red, an old and widespread practice (from prehistoric Europe to the American Indians), painting of marble heads and statues in ancient Greece, red as life-color (the corpse or skeleton is given the appearance of life), smearing with blood, as in fetish (in Africa blood is the sacrifice that reconstitutes life), red as symbol of the power and pulsing of human life and energy. The Mediterranean region alone offers much evidence as to these ideas, which go back to very ancient times. Red-painting of bones, v. D. thinks, cannot be always explained as transference from painting of the skin, clothes-color, etc. To the literature cited should be added Hrdlicka's paper in the *American Anthropologist*, iii, 701.

- Eckert (M.)** Zur Geschichte und Methode der Wirtschaftsgeographie. (Globus, Brnschw., 1906, LXXXIX, 159-161.) Résumé and critique of Dr Alois Kraus's *Versuch einer Geschichte der Handels- und Wirtschaftsgeographie* (Frankf. a. M., 1905).
- Fischer (E.)** Ueber Pigment in der menschlichen Conjunctiva. (Verh. d. Anat. Ges. zu Genf, 1905, XIX, 140-144, 1 fig.) Gives results of examination of the pigmentation of the conjunctiva in 20 Germans (Baden), one Italian, one Japanese and one Chinese, one Hindu, two Melanesians, and two Negroes. The Italian and the Germans had no trace of pigment. The order as to quantity of pigmentation is Negro, Melanesian, Hindu, Chinese, Japanese (very little). These facts, according to F., support the Schwalbe theory of the originally dark skin of man; indicating also that the European lost pigment first.
- Giuffrida-Ruggeri (V.)** In occasione delle onoranze a Cesare Lombroso. Antropologia normale e antropologia criminale. (A. d. Soc. Rom. di Antrop., 1906, XII, 335-337.) Discusses relation of normal and criminal anthropology. The somatic and psychic study of the degenerates of higher races is useful for comparison with the corresponding data concerning the lower races of man. The nexus of the somatic and the psychic belongs to both.
- Il maggior peso dell'encefalo femminile dimostrato da Angelo Messadaglia (Ibid., 338-339). Cites from a MS. work on *Calcolo dei valore medii* left by the well-known statistician, Prof. A. Messadaglia (d. 1901), of which one chapter, *Critica della teoria di Quetelet su l'uomo medio*, has been published by Prof. Viola in the appendix to his *Uomo medio Veneto* (Padova, 1905), his demonstration of the fact that the female brain is proportionately (as to stature) heavier than the male.
- Hervé (G.)** De Charles Estienne et de quelques Recettes et Superstitions médicales au XVI^e siècle. (R. de l'Éc. d'Anthrop. de Paris, 1906, XVI, 133-139.) Cites from the *L'agriculture et maison rustique* of Charles Estienne, published in French in 1564 and in Latin as *Prædium rusticum* some time previously, "remedies which the farmer ought to know for the diseases of his people"—some 35 items. Estienne was humanist, grammarian, physician.
- Hopf (L.)** Ueber Jugendspiele bei Tieren und Menschen. (Corr.-Bl. d. D. Ges. f. Anthrop., München, 1905, XXXVI, 46.) Discusses briefly play-theories, that of Groos in particular. The acme of play is reached in the riddles, games, etc., of children.
- Landrieu (M.)** Lamarck et ses précurseurs. (R. de l'Éc. d'Anthrop. de Paris, 1906, XVI, 152-169.) Article from a forthcoming volume by the author on *Lamarck, le fondateur du transformisme*. Treats of Maupertius, Diderot, Robinet, Buffon, etc.
- Lasch (R.)** Einige besondere Arten der Verwendung des Eies im Volksglauben und Volksbrauch. (Globus, Brnschw., 1906, LXXXIX, 101-105.) Treats of the egg as food of the dead and as grave-gift, as oracle and in fortune-telling and prophesying, as symbol of betrothal and in wedding ceremonies, puberty-customs, etc. The egg plays an important rôle in the "magic" of the folk and of primitive peoples. As symbol the egg has largely lost its magic and uncanny significance. But many relics of the old powerful "egg charm" still remain.
- Lehmann-Nitsche (R.)** Palæoanthropologie. Ein Beitrag zur Einteilung der anthropologischen Disziplinen. (Ibid., 222-224.) Discusses briefly paleoanthropology and its place in anthropological science. According to Dr L.-N.'s classification, paleoanthropology treats of the extinct forms of the human race, has two divisions (physical, psychic), each of these having also a zoo- and a phylo-subdivision. Anthropology itself is similarly divided.
- Schädeltypen und Rassenschädel. (A. f. Anthrop., Brnschw., 1906, N. F., V, 110-115.) Discusses views of Blumenbach, Nyström, Bartels, Virchow, Rieger, Rebertsch, Ranke, Papillault, etc. There are infantile, adult and senile varieties of the age skull-type; there are also individual skull-types and sexual skull-types; physiological or biological skull-types; culture skull-types; race skull-types. In America there is not merely polytypy in skull-forms but even polikilotypy. From various standpoints one and the same skull can be biological, sexual, racial, etc., in type.
- Manouvrier (E.)** Une application anthropologique à l'art militaire. (R. de l'Éc. d'Anthrop. de Paris, 1906, XVI, 93-101.) Résumés M.'s *Le classement*

des hommes et la marche dans l'enfance (Paris, 1905, pp. 98), which has also appeared in vol. xxxviii of the *Revue d'enfance*. The reform proposed is simply to arrange the infancy in each section according to the length of their legs, the short-legs preceding.

(L.) *Conclusions générales sur l'anthropologie des sexes et applications sociales*, II. (Ibid., 249-260.) Argues that the rôle of science in politics and sociology is exactly the same as in medicine and hygiene. Political and sociological science ought to adapt itself to the nature of psychological facts by the same right and in the same way as the art of medicine adapts itself to the necessities imposed by biological chemistry.

v. Mengden (W.) Bericht über den Ersten Internationalen Archäologischen Kongress in Athen im April 1905. (Stzgb. d. Ges. f. Gesch., n. s. w., Riga, 1905 [1906], 101-112.) Brief account of papers and proceedings of the First International Archeological Congress, Athens, 1905.

Müller (E.) Om de äldsta människors serna. (Ymer, Stockholm, 1906, xxvi, 121-138, 1 fig.) Treats of the problem of the oldest human race (Neanderthal, Spy, Trinil, Krapina, etc.) M. concludes that all the highest developmental forms in the organic realms, the *Pithecanthropus*, *Homo primigenius*, and *Homo sapiens*, are ramifications from a common, undifferentiated primitive form, about which we lack all knowledge.

Nilsson (M. P.) Totenklahe und Tragödie. (A. f. Religsw., Lpzg., 1906, ix, 286-287.) Résumé of an article in Swedish in *Comment. philologie in hon. Joh. Paulsen* (Göteborg, 1905). According to N. one of the roots of the tragedy lies in the death-lament over the dead hero-god; thus grief and pain were always characteristic of it. Its name comes from the fact that the orgiasts clothed themselves in the skin of the slain animal, usually a goat.

Oberhammer (E.) Anfänge der Völkerkunde in der bildenden Kunst. (Corr.-Bl. d. D. Ges. f. Anthrop., München, 1905, xxxvi, 127-130.) Treats of the beginnings of ethnology in the pictorial art of prehistoric man (*femme au renne* and "bison-hunter" of Laugerie-basse), primitive peoples (Australia, Africa, America), ancient civilized races (China, Japan, India, Egypt, Greece, Rome).

There is rich material for study in this direction.

Perusini (G.) Sui caratteri detti "degenerativi" delle sopracciglia, vortici sopraccigliari e sopracciglio-frontali. (A. d. Soc. Rom. di Antrop., 1906, xii, 279-292, 3 pl., bibliogr.) Treats of the so-called "degenerative" characters of the eye-brows (vortices, etc.)—meeting eye-brows are credited in folk-thought and proverbs of several countries to witches and persons with sexual appetites. Some of the phenomena in question are residua of embryonic dispositions, others chance or individual facts of no "degenerative" significance.

Preuss (K. T.) Religionen der Naturvölker. Allgemeines 1904-05. (A. f. Religsw., Lpzg., 1906, ix, 95-114.) Résumé-reviews of recent works on primitive religion by Hubert and Mauss (magic), Marett (spell and prayer), Beck (imitation), Frobenius (sun-god), Ehrenreich (comparative American mythology), Dieterich (mother-earth), and several by Dr P. himself (origins of religion and art, influence of nature on religion, etc.).

Rabaud (E.) Anomalie de la deuxième circonvolution pariétale. (R. de l'Éc. d'Anthrop. de Paris, 1906, xvi, 291-293, 1 fig.) Describes a large fossa, "parietal fossa" it might be called, in the brain of a man who died of general paralysis. This may be, according to Dr R., a new degeneration-stigma, though other explanations are possible.

Rademacher (L.) Walfischmythen. (A. f. Religsw., Lpzg., 1906, ix, 248-252.) Discusses the widespread myth of the man swallowed by a fish, recently emphasized by Frobenius in his monograph on the sun-god. R. cites also the tale in Lucian overlooked by F., comparing it with Polynesian, Livonian, Angolan, Greek, Magyar and other versions.

Ranke (K. E.) Die Theorie der Korrelation. (A. f. Anthrop., Brnschw., 1906, N. F., iv, 168-202, 6 fig.) Résumé and demonstration of the theory of correlation as developed in the works of Galton, Pearson and Yule.

Renard (L.) Henri Schuermans. Notice biographique. (Bull. Inst. Archéol. Liégeois, Liège, 1905, xxxv, 325-345, portr.) Sketch of life, appreciation and list of publications of the Belgian archaeologist and epigrapher, H. Schuermans (1822-1905).

Révész (B.) Der Einfluss des Alters der Mutter auf die Körperhöhe. Eine anthropologisch-soziologische Studie. (A. f. Anthrop., Brnschw., 1906, N. F., IV, 160-167.) Cites Riccardi, Rácz, Duncan, Kézmaritzky, Deniker, etc. Dr R. concludes that the younger the mother the smaller the child, the older the taller—individually and racially.

Sudhaus (S.) Lautes und leises Beten. (A. f. Religsw., Lpzg., 1906, IX, 185-200.) Treats of loud and low prayer among the nations of antiquity (Romans, Greeks, Hebrews, etc.). The low or silent prayer is widespread and typical in the realm of charms and magic. Loud prayer is the older, corresponds to more primitive ideas of the relation of man to the gods, and is known to all the ancient nations. Prayer aloud persists still in Italy, etc. Silent prayer represents rather a modern idea, in some respects.

Thoroddsen (T.) Endinn nogle Ord om Landsbro-Hypotesen. (Ymer, Stockholm, 1906, XXVI, 93-101.) Discusses post-glacial land communication by way of the North Atlantic and replies to article by H. G. Semmons. If the land-bridge existed in the time of the kitchen-midden people of Scotland, etc., they could have passed northward over the Faroes and Iceland to Greenland.

Thulié (H.) Le terrain mystique. (R. de l'Éc. d'Anthrop. de Paris, 1906, XVI, 217-227.) Chapter II of a forthcoming volume on *La mystique pathologique*. Emphasizes the early time of life at which the signs of degeneration appeared and the precocity of the manifestations of diseased mysticism. Numerous instances are cited of mystics of both sexes exhibiting pathological traits.

von Török (A.) Versuch einer systematischen Charakteristik des Kephalex. (A. f. Anthrop., Brnschw., 1906, N. F., IV, 110-129.) The author outlines a scheme based on consideration of extent of variation of greatest length, greatest breadth, and greatest height (Virchow) of skull, by which any skull of any race can be characterized at once in reference to these three dimensions, and found to be really long, short, etc. Pages 119-129 are occupied by a table for using the system.

Walcher (G.) Ueber die Entstehung von Brachy- und Dolichocephalie durch willkürliche Beeinflussung des kindlichen Schädels. (Corr.-Bl. d. D. Ges. f.

Anthrop., München, 1905, XXXVI, 43-45, 1 fig.) Reprinted from the *Zbl. f. Gynäkol.*, 1905.

EUROPE

Andrae (A.) Hausinschriften aus deutschen Städten und Dörfern. (Globus, Brnschw., 1906, LXXXIX, 181-189.) Cites numerous house-inscriptions (mostly in German dialects, some in Latin, etc.) from some 50 German towns and villages. They belong to the 16th, 17th and 18th centuries, and are sometimes accompanied by house-marks.

de Aranzadi (T.) Zur Ethnographie des Ochsenjoches und zur Baskenkunde. (Ibid., 298.) Adds to data in previous article of Prof. Braungart, concerning the ox-yokes of the Basques (the characteristic one is a horn-yoke with two pointed bows), etc. The name of the hazel (*urra*) is older in place names than those of the oak and the walnut. Olive and vine are lacking in place names.

Bailly (F.) Notice sur les anciennes mesures de Bourgogne. (Mém. Soc. d'Archéol. de Beaune, 1904 [1906], XXIX, 223-306.) Interesting historical and explanatory account of the old measures (for liquids and semi-liquid substances) and weights, etc., of Burgundy.

Bardon (L.) et Bouyssonie (J. et A.) Outils écaillés par percussion. (R. de l'Éc. d'Anthrop. de Paris, 1906, XVI, 170-175, 4 figs.) Treats of fragments and flakes of flint, tools produced by percussion, retouched pieces, etc., from the Coumbo-del-Boulton in Corrèze. These flaked tools occur most frequently in the old strata of the "glyptic" age, being absent from the typical Magdalenian.

Bärwinkel (Dr) Die Körpergrösse der Wehrpflichtigen der Unterherrschaft des Fürstentums Schwarzburg-Sonderhausen. (A. f. Anthrop., Brnschw., 1905, N. S., IV, 41-47, 3 maps.) Gives results of measurements of height of 9,608 recruits (1872-1901) from two towns and 48 other places. The average stature is 167.1, rather higher than that for the neighboring districts. No influence of calcareous areas on stature is noticed, nor of lowland and plateau.

Blümmel (E. K.) Germanische Totenlieder, mit besonderer Berücksichtigung Tirols. (Ibid., V, 149-181.) After a general discussion of Teutonic songs on death and related folk-verse of other

peoples — many titles dating 1430–1791 A. D., are cited — the author treats of Tirolese death-songs (those in which the dead man speaks, those in which the survivors speak, soul-songs in which the bettering of the fate of the dead is asked), their motives, etc. At pages 169–181 texts of 41 Tirolese and 2 Styrian songs are given (chiefly dating ca. 1880).

Brenil (H.) Rhinocéros gravé sur schiste de la Grotte du Trilobite, à Arcy-sur-Cure, Yonne. (R. de l'Éc. d'Anthrop. de Paris, 1906, xvi, 242–246, 4 figs.) Treats of a large fragment of schist having on it 3 figures of parts of rhinoceroses on one side (also head of goat), and on the other a second sketch of a rhinoceros. The period to which it belongs is probably the transition from the Aurignacian to the Solutrean.

Broadwood (Lucy E.) A Swiss charm. (Folk-Lore, Lond., 1906, xvi, 465–467.) Describes a Latin cross, made of the *Spiræa aruncus* and *Astrantia major* (whose crimson flower is thought to be stained by the blood of Jesus) on the eve of St John by the peasants of the Val de Morgins on the Savoy border of the canton of Valais.

v. Bruiningk (H.) Das Aquamanile im Dommuseum zu Riga. (Strgb. d. Ges. Gesch., u. s. w., Riga, 1905 [1906], 6–12, 1 pl.) Describes the only specimen so far known of an *aquamanile* (of the lion type) from the Baltic provinces, found near the village of Palloper.

Capitan (L.), Breuil (H.), Bourrinet (—) et Peyrony (—) L'abri Mège, une station magdalénienne à Teyjat, Dordogne. (R. de l'Éc. d'Anthrop. de Paris, 1906, xvi, 196–212, 9 figs.) Describes the "station" of the reindeer age (no traces of change of lowering of temperature; horse and bison rare, deer absent) and Magdalenian epoch at Teyjat in Dordogne, discovered in 1903, and the finds since made (bones of animals; human tools, weapons, etc., of flint, horn, bone, carved "bâtons" and other art objects, etc.). The ornamentation of these fragments of bone objects (all appear to have been violently broken) consists of various marks, geometrical designs (some perhaps "property marks," "artists' signatures," or something of the sort), figures of seals and other animals. Up to the present but five carvings of seals have been found — at Duruthy, de la Vache, Gourdan, Brassempouy, Montgaudier.

Commont (M.) Les découvertes récentes à Saint-Acheul. L'Acheuléen. (Ibid., 228–241, 19 figs.) Treats of term "Acheulean" and change in meaning in the last 30 years. Author distinguishes "the old Acheulean," characterized by oval flints, and "the more recent Acheulean" marked by lanceolate flints finely retouched. The manner of prehension of these implements is indicated (man of this period was probably ambidextrous). Besides the large Acheulean flints there are also small ones.

von Domaszewski (A.) Die Schutzgötter von Mainz (A. f. Religsw., I. prg., 1906, ix, 149–158, 1 pl.) Treats of the figures of deities on the four sides of a dice-formed stone found in 1889 in the canal-works at Mayence, and belonging to Roman times — serving probably as base for a Jupiter column, but richer and finer than similar bases. The deities figured are Diana and Silvanus, the typical Roman Genius and Fortuna, Apollo and Salus, Mercury and Victoria.

Dussaud (R.) La civilisation préhellénique dans les Cyclades. (R. de l'Éc. d'Anthrop. de Paris, 1906, xvi, 105–132, 18 figs.) Treats of the primitive tombs of the Cyclades, pre-Hellenic ruins of Thera (Santorin), temple-cavern on Cynthos (Delos), commerce in obsidian in the Aegean and the foundation of Phylacopi (Melos), the three superimposed cities on the site of Phylacopi, bronze-age Cycladean pottery, primitive Aegean vessels (boats). According to D., while the Aegean sea has not been the oldest cradle of civilization, it has been the scene of its most brilliant and most powerful development — "all branches of human intelligence progressed there — Greece created the beginnings of rational science, divorced from mystery and magic." The first culture impulse came from Egypt to Crete, then by way of the Cyclades to continental Greece. Outside their rôle as continuers and adapters of culture, "the Greeks instituted the scientific method, this is their lasting honor."

Feuler (B.) Die Holz- und Kohlenstransportmittel im südlichen Tessin. (Schw. Arch. f. Volksk., Basel, 1906, x, 1–21, 41 figs.) Treats of the transportation of wood and coal in the southern Ticino.

Fourdrignier (É.) L'éclairage des grottes paléolithiques devant la tradition des monuments anciens. (R. de l'Éc. d'Anthrop. de Paris, 1906, xvi, 325–336,

4 figs.) From consideration of the methods of lighting modern cellars and subterranean buildings, foresters' cabins, Merovingian houses, edifices of antiquity in the Mediterranean region, etc., F. concludes that the cave-dwellings of prehistoric man were illuminated by direct daylight by openings with the use perhaps of some primitive reflector. It is certainly hard to believe that the cave-sculptures and paintings were made by fire or lamp light.

Gaster (M.) The legend of Merlin. (Folk-Lore, Lond., 1906, xvi, 407-427.) Discusses the account of Geoffrey of Monmouth and cites evidence to prove that "Vortigern and Merlin are here the late and somewhat confused outcome of a more ancient Oriental tale which belongs to the cycle of King Solomon and Ashmedai or Asmodeus." G. quotes a legend from an old Roumanian MS., which "will prove, I hope, the existence of the missing link between the Oriental tale and the western Christian counterpart, and indicate the way and the possibility how such legends could have become known to the monks in the West." Here, just as elsewhere, the base metals of spurious and wondrous tales have been alchemized into immortal poems, older Oriental tales have been transformed by lesser geniuses into romantic poems. In a note appended to G.'s paper, Miss Jessie L. Weston dissents from his view that the prose romances preceded, and were the sources of, the poetical, this idea being contrary to the main body of expert opinion. See also p. 463.

Giuffrida-Ruggieri (V.) Crânes européens déformés. (R. del'Éc. d'Anthrop. de Paris, 1906, xvi, 316-324.) Discusses the questions raised by the deformed skulls found in *Reihengräber*, German graves of the Middle Ages: the voluntary or involuntary nature of the *Reihengräber* deformation, the relation of these deformed skulls to the European "macrocephals," nature and origin of this macrocephaly, origin and relations of the Toulousan deformation, etc. Dr G.-R. sees in European deformed skulls "no voluntary ethnic deformation, but only, as Féré has said, the isolated victims of an absurd custom."

Gössler (—) Die wichtigsten Probleme der griechischen Urgeschichte. (Corr.-Bl. d. D. Ges. f. Anthrop., 1905, xxxvi, 45-46.) Discusses results of Cretan in-

vestigations. The transition from Aegean to Mycenaean culture occurred diversely according to locality. The Mycenaean and the Homeric house differed considerably, the latter being the survival of a primitive simpler type. The Carians were probably the creators of this older Cretan culture.

Häberlin (Dr) Brennmaterial und Feuerherd auf den Halligen der Nordsee. (Globus, Brnschw., 1906, lxxxix, 177-178.) Treats of fire-material and fire-place on the low isles of the North Sea. There are no trees (except a few in gardens). Cow-dung is an important "fire wood."

Hagen (K.) Frühgeschichtliche Viehschellen im Norden. (Corr.-Bl. d. D. Ges. f. Anthrop., München, 1906, xxxvi, 134-136.) Treats of early historical cow-bells in Northern Germany (c. g., of the late Roman period, found near Wester-Wanna, in an urn-cemetery since 1901). References to other finds are given. Roman influence is seen in more than one kind of cow-bell in Switzerland, Germany, etc.

Hausmann (R.) Ein Bronze-Depotfund mit einer römischen Bronze-Lampe, gefunden zu Kawwast bei Dorpat. (Stzgh. d. Ges. f. Gesch., u. z. w., Riga, 1905 [1906], 64-74, 1 pl.) Describes the bronze objects (including a Roman bronze lamp, a *unicum* from this part of Europe) found at Kawwast in the parish of Mairén-Dorpat in 1902. A find of Roman objects here is remarkable.

Hertzog (A.) Die drei Tannen des Theobaldusfestes zu Thann. (Corr.-Bl. d. D. Ges. f. Anthrop., München, 1905, xxxvi, 41-43.) Describes the celebration of St Theobald's day (July 1) at Thann and the fire of the three firs—the survival of an old heathen Teutonic rite.

Höfler (M.) Das Haaropfer in Teigform. (A. f. Anthrop., Brnschw., 1906, n. F., iv, 130-148, 50 figs.) Interesting and valuable contribution to the literature of sacrificial objects. Names, typical forms, strewing with poppy-seed, salt, coloring with violet, time of gift (All Souls, New Year, death-occasions), etc., show, according to H., that in the cue or plait cakes and bread known in Germany, etc., especially, we see the symbol or rudiment of the older hair-offering, so widespread in the world.

— Vogelgebäck. (Globus, Brnschw., 1906, lxxxix, 221-222, 6 figs.) Refers to German baked objects in the form of

birds as models for those made by the South Russian Jews. According to H., the idea behind most of these confections is the "soul bird."

— St. Lucia, auf Germanischen Boden. (A. f. Religsw., Lpzg., 1906, ix, 253-261.) Treats of St. Lucia (d. 300 A.D.; her day is Dec. 13) and the ceremonies and folk-lore relating to her and her day in Teutonic countries—plants of medicinal value named after her, cross of St. Lucy as amulet, "little Yule," "Lucy meals" and offerings to souls of dead, relations to the fates, etc. According to H., "St. Lucy's day illustrates how stubbornly certain folk ideas (mythological and religious) cling to the periods of the year connected with cults of the dead or of souls."

Kazarow (G.) *Thrakisches*. (Ibid., 287-289.) Discusses the views of Fick, etc., concerning the relationship of the early inhabitants of Thrace with the Pelasgians, peoples of Asia Minor, etc., place-names, deities, phallus-cult.

Klippel (M.) *et Rabaud* (É.) *Hémimélie thoracique droite*. (R. de l'Éc. d'Anthrop. de Paris, 1906, xvi, 141-151, 3 figs.) Treats of a case of right thoracic hemimelia in a youth of 17 years, with discussion of the nature and origin of hemimelia. The authors reject all theories hitherto put forward in explanation of the phenomenon, but incline to attribute it to localized general action.

Kupka (P.) *Neolithische Funde von Arneburg*. (Z. f. Ethnol., Berlin, xxxviii, 164-165, 5 figs.) Describes briefly the finds (ornamented clay vessel, and other ceramic fragments, a bone awl, stone prisms, etc.) at a neolithic "station" at Arneburg.

— Ein wendischer Grabfund von Wahrburg. (Ibid., 165-166, 3 figs.) Notes on the finds made in 1905 in a Wendish grave (pottery fragments, iron spurs, knife, etc.) at Wahrburg and now in the Stendal museum.

— Ein inkrustiertes Tènegefäß von Ünglingen-Süd. (Ibid., 227-228, 2 figs.) Describes an incrustated La Tène urn from a burial-place at the village of Ünglingen, district of Stendal—all others found were unornamented. Incrustated La Tène vessels have as yet been rarely observed. Some of the customary La Tène metal objects accompanied the urns.

— Eine Tèneurne aus dem Gräberfelde bei Erxleben, Kreis Osterburg. (Ibid.,

229.) Note on a fine specimen of a La Tène urn from Erxleben, with the well-known suspended triangle motif of ornamentation. In the urn were calcined bones on which rested a bronze-headed iron needle.

MacLagan (R. C.) Additions to the "Games of Argyleshire." (Folk-Lore, Lond., 1906, xvi, 439-460.) Cites additional items concerning: Minnechan, noise-machines (strannair, sucker, cowrie), "pain-giving, puzzles, riddles, rhymes, counting-out rhymes, children's rhymes, lullabies.

Mahoudeau (P.-G.) Documents pour servir à l'étude de la Corse. (R. de l'Éc. d'Anthrop. de Paris, 1906, xvi, 177-195.) Based on measurements of 354 adult male Corsicans—stature is discussed in detail, and compared with the head-measurements given in a previous article. Two distinct groups exist, one of tall stature in the highest mountainous regions especially, the other short and disseminated over all the island.

v. Majewski (E.) Ueber eine neuentdeckte polnische schnurkeramische Gruppe mit Schnurwellenverzierung. (Z. f. Ethnol., Berlin, xxxviii, 221-227, 15 figs.) Describes a species of pottery-ornamentation—"straight or wavy horizontal ribbon type"—represented on more than 200 vessels from over 20 neolithic "stations" in southern Poland. Comparable to the Polish neolithic combination of horizontal and wavy lines are the decorations on vessels from Zernki Dolne (dating A. D.). Some relationship may exist between them.

Mehlis (C.) Der Bronzezeitfund von Klingenstein i. d. Pfalz und der "Goldene Hut" von Schifferstadt. (A. f. Anthrop. Brnschw., 1906, N. F., iv, 287-292, 10 figs.) Treats of the find of the bronze age (daggers, celt, axe, needles, ear-ring, and several fragments of vessels) from tumulus-graves at Klingenstein examined in 1904; also a bronze knife found near Silz in 1900. The "golden hat" of Schifferstadt was found in 1835—it is probably the head-covering of a chief of the middle of the bronze age.

— Die bemalten Kiesel von "Böhl" bei Neustadt a. d. Hart. (Globus, Brnschw., 1906, lxxxix, 170-177, 1 pl., 1 fig., map.) Discusses in detail the painted pebbles found in 1905 at the neolithic "station" of "Böhl" near

Neustadt, the place and conditions of their discovery, archeological data, etc. The only other "painted pebbles" known are those of Mas-d'Azil. The marks on the Böhl pebbles strikingly resemble those on pottery from Naqada and Ballas (ancient Egypt), certain Cretan pictographs, etc. There seems to be no doubt of the genuineness of these objects and their discovery in the Rhine country is of great cultural significance.

Meyer (E.) Handarbeiten der lettischen Bevölkerung auf der Kurischen Nehrung. (Ibid., 317, 1 fg.) Figures and describes a pair of woolen gloves, called *sinde*, very brilliant in colors. The "Kures" and the Lithuanians have a very marked color and form sense. Red and white are used for various purposes.

de Mortillet (A.) La pierre-folle de Bournaud et les dolmens du département de la Vienne. (R. de l'Éc. d'Anthrop. de Paris, 1906, xvi, 282-288, 2 fgs.) Lists 129 dolmens of the department of Vienne (of which some fifty have disappeared, and others are partly in ruins), with special account of *La Pierre-Folle des Ormeaux* near Bournaud, one of the most curious and important of these monuments. Among the names of these dolmens are: Pierre-Levée, Pierre-Fade, Pierre-Couverte, Pierre-Folle, Pierre-Soupèze, Pierre-Pèze, etc.

— *L'allée couverte de Coppière, Seine-et-Oise.* (Ibid., 297-315, 25 fgs.) Describes the "covered way" of Coppière, discovered in 1891, with detailed account of investigations made since (in all 209 objects—flints, stone and bone objects, beads, horn objects, pierced teeth, shells, etc., copper and bronze beads, pottery sherds, bit of glass, etc., were found). In the breccia human bones occurred. Most of the remains are neolithic, but some intrusive fragments of terra cotta and pottery, the piece of glass, etc., are of the Roman period. Inhumations were made here in the Robenhaus period, and again at the beginning of the bronze age.

— *Le grand menhir de Glomel, Côtes-du-Nord.* (Ibid., 87-92, 9 fgs.) Historical-descriptive account of the great menhir of Glomel, one of the largest monuments of the kind in France and one of the least known.

Obermaier (H.) Beiträge zur Kenntnis des Quartärs in den Pyrenäen. Erster

Teil. (A. f. Anthrop., Brnschw., 1906, N. F., IV, 299-310, 2 pl., 5 fgs.) This first part of a study of the quaternary in the Pyrenees treats of the Garonne basin between Toulouse and Martres, the lower course of the Ariège, the old plateau-alluviums of the Miocene elevations east of Toulouse, quaternary archeological data at Toulouse, "station" on or in fluvioglacial terraces, "stations" without immediate stratigraphic relation to fluviatile terraces; other quartzite finds in the Miocene at Toulouse. The evidence shows, according to Dr O., that the Acheulean population of Southern France lived after the third ice-age, and consequently in the löss-phase of the third interglacial period. There are indications of the subsequent return of a warm fauna into the Pyrenees—the Acheuleans were contemporaries of the reindeer, mammoth and woolly rhinoceros.

— *Zur Eolithenfrage.* (Ibid., 75-80, 8 pl., 1 fg.) Discusses the geological "eolith stages," and concludes that the "eoliths" of Rutot are not much older human artifacts than those of the Chellean and Acheulean epochs.

Peredolsky (W.) Dessin figuratif sur une poterie de l'époque néolithique. (R. de l'Éc. d'Anthrop. de Paris, 1906, xvi, 73-86, 6 fgs.) Treats of the fragments of a vase with ornamental designs on the surface, from the neolithic "station" at the head of the river Volkov (near Lake Ilmen in Russia) found in 1904—this region, rich in evidences of human activity, was first explored in 1886. The find is unique and indicates the existence of decorative pottery in this region in the first half of the neolithic period.

Perko (G. A.) Die Riesengrotte bei Triest.—Opcina. (Globus, Brnschw., 1906, LXXXIX, 152-157, 3 fgs., map.) The immense grotto of Opcina, near Trieste, has been visited and used by man in prehistoric and in Roman times, as rich remains of pottery sherds, animal bones, flints, and also Roman coins and inscriptions, indicate.

Pilcz (—) Zur Lehre vom Selbstmord. (Jhrb. f. Psychiatrie, Berlin, 1905, XXVI, 294ff.) Based on data concerning 1671 (male 1245, female 426) subjects in the K. K. Inst. f. gerichtl. Medizin in Vienna. Seasonal influence is not marked—the highest month, however, is May. About 7 percent of the men

and 13 percent of the women committed suicide before the 21st year, and over 50 percent of the women before the 31st. According to P., sexual conditions peculiar to women are important factors in suicide—some 22 percent suffered from affections of the genital organs.

von Pratt (H.) MHTHP. Bruchstücke zur griechischen Religionsgeschichte. (A. f. Religsw., Lpzg., 1906, IX, 87-94.) Treats, in a fragmentary fashion, of the Greek cult of Meter—the Meter-Phallus cult corresponds to mother-right and group-marriage, etc.—then of the effects of father-right and the connection of the idea of the mother-goddess and the agrarian (afterward, the sexual), the introduction of the idea of the beautiful into mythology. The husbandless Meter belongs to the age of group-marriage.

Reindl (J.) Die letzten Spuren urältesten Ackerbaues in Südbayern. (Globus, Brnshwg., 1906, LXXXIX, 189-190.) Treats briefly of the traces of the earliest primitive agriculture in southern Bavaria.

Seger (H.) Die Steinzeit in Schlesien. (A. f. Anthropol., Brnshwg., 1906, N. F. V, 116-141, 10 pl., 48 figs.) Treats of the stone-age "station" of Jordansmühl and the remains (house-pits, human skeletons, graves, flints and stone implements, copper ornaments, beads, objects of bone, horn, etc., pottery plain and ornamented) then discovered there, 1898-1905, also other finds of the Jordansmühl type (Worschwitz, Brockau, Ottitz), the Bschanz type (vase) and related vessels, etc. In 1902 two animal graves were found at J.—no evidence of the horse.

Sergi (G.) Qualche determinazione sulla cronologia dell'uomo quaternario in Europa. (A. d. Soc. Rom. di Antrop., 1906, XII, 299-307.) The conclusions given in a chapter of the author's forthcoming book, *L'Europa preistorica*, with chronological table of Quaternary man. S. thinks that *Homo europæus* (or *primigenius*) of the Neander-Spy type continued to exist till the third interglacial epoch, during which last period the *Homo curaffricanus* migrated into Europe from Africa, favored by forest and climate. Man himself is a product of the Tertiary.

W. (R.) Die Hochzeitsgebräuche der Setud. (Globus, Brnshwg., 1906, LXXXIX, 237.) Transcribes from the second volume of *Setukeste Lautud*,

the monumental work of Dr Jakob Hurt, the Esthonian folk-lore, the account of the wedding ceremonies of the Setud, the Greek-Orthodox Esthonians (as distinguished from the Protestant Esthonians of Livonia). Hurt (pages 461-499) gives details of these rites, etc.

Waldeyer (—) Ueber das Stillen der Kinder durch die Mütter. (Corr.-Bl. d. D. Ges. f. Anthropol., München, 1906, XXXVI, 130-132.) Discusses the prevalence of feeding the infant by others than the mother, particularly in upper Bavaria, where the mother-feeding is not customary among the country population, but is rather looked on as improper.

Weniger (L.) Feralis exercitus. (A. f. Religsw., Lpzg., 1906, IX, 201-247.) This interesting and valuable monograph on "spirit-armies," discusses in detail the "black host" of the Teutonic Harii and the "white host" of the Greek Phoceans. The former are said by Tacitus to have frightened their enemies by using, in addition to their natural fierceness, such artificial aids as black shields, painted bodies, dark nights for battles, thus simulating the aspect and action of the spirits of the dead. The Phoceans, Herodotus records, made similar night-attacks, after having painted themselves white with gypsum. Both have like origins, resting upon the same superstition, imitation of the rôle of the dead—in the case of the Harii of Wodan's "host," in the case of the Phoceans of Dionysos and his Thiasotes.

Zaborowski (S.) Rapports du gothique et du lithuanien et de celui-ci avec le grec. (R. de l'Éc. d'Anthropol. de Paris, 1906, XVI, 247-248.) Cites existence of Teutonic borrowings from Lithuanian (e. g., *Hanf* and perhaps *Apfel*) and Greek loan-words in Lithuanian (e. g., *geleis*, "iron" = Greek χαλκός, "copper"). According to Z., the Greek and Latin words for hemp (*cannabis*) are of Lithuanian origin. Archeological evidence (bronze objects, coins, etc.) of Greek relations with the Baltic country also exists—at least as early as the fourth century B. C.

— Pour le nom d' "Aryen." (Ibid., 294-296.) Argues for the name *Aryan* as better than *Indo-German* or *Indo-European*. The Aryanization of Asia may well be remembered in the name of the great people who originated in Europe.

Zur Baskenkunde. (Globus, Brnschw., 1906, LXXXIX, 126-127.) Brief résumé of Dr. Telesforo de Aranzadi y Unamuno's *Testas de la tradición del pueblo vasco* (San Sebastian, 1905), three essays, treating, respectively, of Basque place-names, physical anthropology, ox-yokes. Dr de A. claims that "the Basque type is, of all human races, most removed from the quadruped."

AFRICA

Ankermann (B.) Ueber den gegenwärtigen Stand der Ethnographie der Südhälfte Afrikas. (A. f. Anthrop., Brnschw., 1906, N. F., IV, 241-286, 5 pl., 17 fgs.) Résumés our knowledge of the ethnography of Bantu South Africa. Treats of races and languages (language of pygmies and Bushmen unrelated, Hottentots distinct physically from Bushmen and Pygmies, Bantu physically a much mixed race), Bantu-tribes (descriptive list), Bantu-culture (agriculture except the Herero, culture-plants, domestic animals, hunting and fishing, cannibalism, intoxicants, water-pipe of Asiatic origin, tobacco, habitations of three types, furniture and utensils, clothing and ornament, painting and tattooing, hair-dress, bodily deformations, weapons and warfare, tools and implements, iron-working, etc., pottery of no high development, wood-carving, textile art, basketry and matting, weaving, barter and commerce, boats and navigation not well developed, money of various sorts, music and dance as chief pleasures, musical instruments of several kinds, social organization, classes, slavery, chiefs, totem-groups, crimes and punishments, family and woman's life, children, puberty-ceremonies, property and inheritance, burial, religion on animistic basis, cult of spirits, folk-literature), Bantu origins and migrations. Dr A. thinks that a homogeneous Bantu type no longer exists, has, perhaps, never existed. Also that some connection exists between African and Oceanic culture. Evidence of Hamitic influence occurs throughout the Bantu area.

Aus der Vorzeit des Nigergebietes. (Globus, Brnschw., 1906, LXXXIX, 240-241.) Based on the article of Lieut. Desplagnes in *La Géographie* for February, 1906, giving an account of his archeological and ethnographical investigations in the Niger country. The

tumuli of the lake-region of the middle Niger (representing the culture of the mediæval Ghanata kingdom), the prehistoric and protohistoric monuments of the central Niger valley ("stations," stone monuments, monoliths with sculptures, ruins of Kukia, the first capital of the Songa kingdom, Berber and Negro graves, etc.), the present and former distribution of tribes and peoples, are considered. These investigations are important for the history of the Negro race in West Africa and their contact with the Berbers, Arabs, etc.

Bleber (F. J.) Reiseindrücke und wirtschaftliche Beobachtungen aus Gallaland und Kaffa. (Ibid., 117-122, 133-139, 13 fgs., map.) Gives account of expedition in Gallaland, etc., in 1905. Contains notes on the Kaffitcho (clothing, religion), Ometi, etc., agriculture, industries, etc., of various tribes and towns. Kaffa, B. thinks, may become a second Rhodesia.

Carton (Dr) Le Dar-el-Acheb, Dougga. (Rec. d. Notes et Mém. Soc. Archéol. du Dép. de Constantine, 1905 [1906], 4^e s., VIII, 61-65, 4 pl.) Brief account of the Dar-el-Acheb of Dugga, perhaps a sort of *macellum*, of Roman origin.

— *Quatrième Annuaire d'Épigraphie Africaine, 1904-1905.* (Ibid., 125-163.) Gives, with indexes of names, stamps, gods, emperors, religions, offices and functions, army, buildings, geographic names, localities, etc., mentioned, the African (Latin, Greek, Punic, Libyan) inscriptions published in various journals, etc., in 1904-5.

Debruge (A.) Bougie. Compte rendu des fouilles faites en 1904. (Ibid., 67-123, 2 pl., 35 fgs.) Gives accounts of the investigations and finds made at Bougie in 1904—the rock shelter, fishing station of Pic des Singes (pottery, bone and ivory objects, polished bone, beads, rude statuettes, flints, ornaments, —beads, etc., —copper implements, minerals, etc.), the tumulus of the Pic des Singes and the contents (vases, grinding stones, few animal bones) of the 15 "hearths." The fishing-station appears to belong to the era of transition between stone and metal. The tumulus represents the first (very ancient) period of Berber occupancy, with perhaps some traces of their predecessors.

Dennett (R. E.) Bavili notes. (Folk-Lore, Lond., 1905, XVI, 371-406, 4 pl.) Treats of ideas about the soul

(shadow, *revenant*, intelligence, voice or soul of dead, mirror, photography), fetishes (family fetishes, personal charms, "figures of the people," nail-fetishes), wizard-exposure story, *xina* or prohibition (nine classes, the last of these being a "summed-up class" of the animals, etc., concerned, parts only are *xina*,—a long list is given), etc. The Bavili are known also as the Fjort; they are a Bantu people.

Notes from southern Nigeria. (Ibid., pp. 434-439.) Treats of *esimi*, or "making father," a ladies' dance, secret societies, marriage and birth customs of the people about the city of Benin, etc.

Doumergue (F.) Nouvelles contributions au préhistorique de la province d'Oran. (Bull. Soc. Geogr. et Archéol., Oran, 1905, XXV, 399-412.) Enumerates 85 "stations," with finds of rude flints and also fragments of polished axes. Fire-places and tumuli have also been discovered. At Ain Guettara two Chelléan axes were found. Many of the "stations" were reported for the first time.

F (B.) Randall-MacIver über die Ruinen des Maschonalandes. (Globus, Brunschwig., 1906, LXXXIX, 283-284.) Résumés R.-M.'s article on the ruins in Mashonaland in the *Geographical Journal* for April, 1906.

Gsell (S.) L'âge de la pierre dans la région de Bordj-Ménafel et sur la côte. (Rec. d. Not. et Mém. Soc. Archéol. du Dép. de Constantine, 1906, 4^e s., VIII, 9-19, 6 pl.) Treats of stone implements from the region of Bordj-Ménafel and the adjacent coast. By the shore of the sea "primitive men had cut flint in colossal abundance and used it for tools and weapons." Localities noted are Settara, near Cape Djinet, Ménerville, etc.

A Cissi municipium (Ibid., 19-21, 1 fig.) Notes on Djinet, the Roman Cissi municipium—Berber station, Carthaginian emporium, Roman city, and the finds there made the last year (remains of stone buildings, pottery, lead vase, coins of Juba II (collection of an amateur of the time), deformed bronze objects, a human skeleton, part of a white marble stele with Latin inscription), etc.

Mosaïque romaine de Sila. (Ibid., 1-7, 1 pl.) Describes a Roman mosaic found at Sila, one of the *castella* belonging to the Roman *Cirta*. The art is poor and belongs to the third or fourth

century. The *motif* is Scylla personified, but not the Homeric conception.

Gutmann (B.) Trauer- und Begräbnissitten der Wadschagga. (Gloius, Brunschwig., 1906, LXXXIX, 197-200.) Treats in detail of death, mourning, burial customs, etc., among the Wajagga, a Bantu people. Death is a two-sided phenomenon,—release from earthly troubles, fear of the world of ghosts. Women are the mourners. The ceremonies last for days. The family, in the broad sense, is the school of all virtues and to it the native owes his burial ("a friend cannot bury you," says a proverb of the country).

Hermann (D. R.) Neues über die Buschmänner. (Ibid., 285-287.) Résumés S. Passarge's recent monograph on the Bushmen of the Kalahari.

Hinglais (U.) Inscriptions inédites de la province de Constantine pendant l'année 1905. (Rec. d. Notes et Mém. Soc. Archéol. du Dép. de Constantine, 1905 [1906], 4^e s., VIII, 243-259.) Reproduces 170 unpublished inscriptions from Announa (Thibilis), Khemissa (Thurburicum Numidarum), Ain-el-Bordj, Constantine (Cirta), in the province of Constantine.

Huguet (J.) Les Oulad Nall, nomades pasteurs. (R. de l'Éc. d'Anthrop. de Paris, 1906, XVI, 102-104.) Treats briefly of the Oulad Nall, pastoral nomads of Algeria, their migrations, etc.

Jacquot (L.) Dessins rupestres de Mogh'ar, sud Oranais. (Ibid., 289-291, 2 figs.) Notes on rock-carvings of animals (elephant, buffalo, goat, some birds) and a *wirrwarr* of lines and curves, from Mogh'ar in southern Oran (Algeria).

Joly (C. A.) Thurburicum Numidarum, Khemissa. (Rec. d. Notes et Mém. Soc. Archéol. du Dép. de Constantine, 1905 [1906], 4^e s., VIII, 165-192, 18 pl., 1 fig.) Treats of the ruins of Khemissa, the *Thurburicum Numidarum* of the Romans,—theater, nymphaeum, forum novum, baths, arch of triumph of Septimius Severus, platea vetus, temple, curia, tribune, public treasury, basilica, inscriptions, etc.

v. Kleist (—) E. F. Gautiers Durchquerung der Sahara. (Globus, Brunschwig., 1906, LXXXIX, 319-321.) Emphasizes the scientific results of Gautier's trans-Saharan expedition of 1904-1905. There is evidence that the whole Sahara, from Algiers to the Sudan, was once a land well-watered, and thickly populated by

agricultural tribes. Traces of these tribes are found in rock-inscriptions, graves, mortars and grinding stones, flints, arrowheads, etc.

von Luschan (F.) Ueber die ethnologische Stellung dieser "Abessinier." (Z. f. Ethnol., Berlin, 1906, XXXVIII, 159-161.) Points out that the so-called "Abyssinians" of the Castan Panopticum are most of them Somals—the group includes also Gallas, a few east Sudanese Negroes and Egyptians. In the discussion, Hr. O. Neumann added to Dr v. L.'s observations. One of the women in the "Abyssinian village" gave birth to a child, which Dr v. L. saw on the fourth day after: "the skin-color was the same dark-gray as that of the mother (only the *voila* and *plamta* were still dark-red); the gluteal region was very dark-gray. According to the nurse the color at birth was the same.

Mercier (E.) La race berbère, véritable population de l'Afrique septentrionale. (Rec. d. Notes et Mém. Soc. Archéol. du Dép. de Constantine, 1905 [1906], 4^e s., VIII, 23-59.) Historical-ethnographic sketch of the Berber peoples. According to M., the Berbers have inhabited N. Africa from the remotest antiquity, and have continued to live, never ceasing to absorb other peoples and undergoing frequent renaissances. Their treatment by the Romans and their history down to the 13th century A.D. in particular are considered, lists of the various tribes, etc., being given. The mountains, the littoral, the desert, almost all Morocco, is still Berber—the Arabs were largely assimilated.

Moszeik (O.) Die Malereien der Buschmänner in Süd-Afrika. (Intern. A. f. Ethnogr., Leiden, 1906, XVIII, 1-44, 3 pl., 1 fig.) This monograph, edited by Dr S. Levinstein, who also adds an afterword (pp. 41-44) is based on observations of Dr M. during a long residence in the Bushman country. Following topics are treated: Generalities, sandstone caves (the most fertile "finds"), age of paintings (three periods: 1, rude figures of unknown animal forms; 2, animal forms, deeper in color and representing the best art period, in red and yellow; 3, inartistic human figures, representing perhaps a period of decadence; those paintings in which the horse figures cannot be earlier than the eighteenth century; some, however, are many centuries older), material

and utensils, colors, technique, perspective, relation to ancient Egyptian paintings (both represented animals better than men), motives (animals appear in numerous characteristic poses, species easily recognizable, sex likewise, anatomic detail; human head poorly made; figures of inanimate objects rare, symbolic representations also seldom occur; groups relatively rare), etc. Dr L. disagrees with Dr M. as to the theory of decadence in the human figures. The period of true artistic development is to be seen in the early fragmentary representations. Perspective and color first develop in the period of "narrative pictures." Parallels of Bushman art are to be sought in the efforts of prehistoric men and of modern children, not in the products of civilized Egypt and Japan. Relations of Bushmen with Pygmies are still to be proved.

Papillault (G.) La forme du thorax chez les Hovas et chez des nègres africains et malgaches. Contribution à l'étude de l'indice thoracique. (R. de l'Éc. Anthrop. de Paris, 1906, XVI, 63-68.) Gives results of thoracic measurements of 18 negroes, 35 Malagasy and 25 Hovas—the thoracic index rises with the admixture of negro blood. Relation of trunk to limb is also considered. Phylogenetically the thorax flattens from the monkeys and anthropoids to man. Ontogenetically, the index decreases from fetus to adult, rising, however, somewhat in old age. This flattening of the thorax (seen in 3 Americans measured by P. in particular) is both an evolutive and a functional superiority.

Passarge (S.) Der paläolithische Mensch an den Viktoriaställen des Sambesi. (Globus, Brnschw., 1906, LXXXIX, 108.) Notes on the observations of Fielden in *Nature* (vol. 73, Nr. 1882) on paleolithic man at the Victoria Falls of the Zambesi. The relation between the Kalahari sand and the boulders must determine whether the flints in question are late Tertiary or much more recent.

Robert (A.) Notes sur quelques vestiges antiques découverts dans la commune mixte des Maadid. (Rec. d. Notes et Mém. Soc. Archéol. du Dép. de Constantine, 1905 [1906], 4^e s., VIII, 239-241.) Brief accounts of several Latin inscriptions, a mosaic from the ruins of a Roman city near Cérès, a red-earth vase and contents from the Roman ruins near the well of El-Anasser.

- Roquette (M.)** Lanterne de bronze provenant du cimetière palen d'Aïn-el-Hout, douar des Alcida, environs de Souk-Ahras. (Ibid., 229-258, 3 figs.) Describes a bronze lantern, resembling one figured on the column of Trojan (in a nocturnal sea-scene), from the pagan cemetery of Aïn-el-Hout, near Souk-Ahras, exhumed in 1904.
- Scherer (J.)** Streifzüge in Oran im Sommer 1904. (Globus, Brnschw., 1906, LXXXIX, 236-237, 249-253.) These notes of travel in Oran refer here and there to the population (of the Oases Figuig, Dourssa, etc.), and give also an account of Beduin sheik and his people.
- Schilling (C.)** Tamberma. (Ibid., 261-264, 6 figs.) Describes the Tamberma people of German Togo, their round-tower houses, etc. These are one of the shy "wild" tribes of the country.
- Schütze (W.)** Der Elefant in Britisch-Ostafrika und Uganda. (Ibid., 141-144.) Contains some notes on methods of hunting and trapping the elephant, in use among the native tribes (Kikuyu, Masai, Wakamba). Author advocates a government monopoly of elephant-hunting.
- Spiegelberg (W.)** Die Symbolik des Salbens bei den Ägyptern. (A. f. Religsw., Lpzg., 1906, IX, 143-144.) Argues rubbing, smearing and anointing with oil were, in ancient Egypt, protective ceremonies, even when applied to statues.
- Spieß (C.)** Bedeutung einiger Städte- und Dorfnamen in Deutsch-Togo. (Globus, Brnschw., 1906, LXXXIX, 139-141.) Gives the etymology of some 40 names of towns and villages in the German Togo country, — the capital is Lomé, "little market-place."
- Standing (P.)** Verschiedene aus Hebron stammende Glassachen, namentlich Armringe, sowie auch gläserne Armringe aus Nupe. (Z. f. Ethnol., Berlin, 1906, XXXVIII, 231-232.) Notes on glass bracelets, etc., from Hebron in Palestine and from the Nupe country in Africa — tradition in the Sudan, etc., attributes these objects to "Jews." The Hebron and Nupe glass-rings strikingly resemble each other.
- Vel (A.)** Monuments et inscriptions libyques relevés dans les mines de Tir-Kabbine situées sur le territoire de la Commune mixte de Aïn-M'illa. (Rec. d. Notes et Mém. Soc. Archéol. du Dép. de Constantine, 1905 [1906], 4^e s., VIII, 193-227, 6 pl., 11 figs.) Treats of the Berber people of the region of Aïn-M'illa (once filled with populous Roman towns), the monoliths and other stone monuments, their inscriptions, etc., in the ruins of Tir-Kabbine, where once was an ancient city. *Turris Caesaris*, J. thinks, was south of Sigus.
- Vortisch (H.)** Die Neger der Goldküste. I. (Globus, Brnschw., 1906, LXXXIX, 277-283, 293-297, 24 figs.) Treats of physical characters, clothing, intellect and character, family manners and customs, public life, market, travel, political and state relations, folk-music (in some detail). Dr V. notes the early decline of facial traits, especially in women who have borne children; superstition linked with fetish-worship; imagination and power of oratory; gesture and feature-play; dressing men as women and vice versa at funerals (among the Bagoro); little reputation of family and public life; night quieter than day; existence of many petty kings (the eldest sister of dead king has great influence); drums chief musical instruments (children make them out of bottles), wooden xylophone, horns, etc. The natives take well to European instruments and to the singing in church and school.
- Weissenborn (J.)** Tierkult in Afrika. Eine ethnologisch-kulturhistorische Untersuchung. (Intern. A. f. Ethnogr., Leiden, 1904, XVII, 91-175, 2 pl., with maps.) This monograph, with maps of distribution of the various animals worshipped, bibliography, indexes of names and subjects, treats of the facts concerning cults of animals in Africa, their origin, evolution, etc. The topics considered are the animal-cult of African primitive peoples and their animal sacrifices, animal-cult of the ancient Egyptians (either an old local inheritance or the result of exaggerated speculation based on nature-observation), etc. In animal sacrifice the essential and precious thing is the blood, not the animal itself. According to W., the basal idea that gave rise to the cult of animals was "man's dawning idea within himself of a world-soul." The cult region of no animal corresponds with the area of its geographical distribution. Some notable animals (e. g., giraffe, weaver-bird, ostrich) have given rise to no cult.
- Winternitz (M.)** Zur Volkskunde der Insel Soqatra. (Globus, Brnschw.,

1906, LXXXIX, 301-302.) Gives brief account of the folk-lore material (tales, songs, sayings, riddles, etc.; several are cited) in D. H. Müller's *Sogotritexte* (Wien, 1905), with comparative references.

ASIA

A. (B.) Eine religiöse Bewegung im Altai. (Globus, Brnshwg., 1906, LXXXIX, 220-221.) Gives a brief account, after Klemenz and Ackerblom, of the religious movement begun in 1904, by an old Kalmuck of the Altai named Tsheta Tshelpánov, whose interpreter and helper was his adopted daughter, a bright and eloquent girl of 14 years. He preached the coming end of the world, attacked shamanism and its bloody sacrifices. The Russians opposed the movement by force and the "prophet" was imprisoned.

Birkner (F.) Beiträge zur Rassenanatomie der Chinesen. (A. f. Anthrop., Brnshwg., 1905, N. F., IV, 1-40, 20 pl., 13 figs.) Describes with measurements, head and face forms of six Chinese heads and treats the thickness of the soft parts of the same, also the musculature of the head in three Chinese heads. This article deals in part with the same data as were published in the author's *Habilitationschrift* of 1904. See *American Anthropologist*, 1905, N. S., VII, 346.

— Haut und Haare bei sechs Chinesenköpfen. (Ibid., v, 142-148, 2 figs.) Treats of the skin (color, thickness, papillae) and hair (number, cross-section and thickness, grouping) of six heads of Chinese. As compared with Europeans the Chinese head-skin is more richly pigmented, also thicker; the hair is thicker and rounder.

Bogoras (W.) Religious ideas of primitive man, from Chukchee material. (Intern. Amerik.-Kongr. Stuttgart, 1904, 1906, XIV, 129-135.) English original, of which a French version was noticed in *American Anthropologist*, 1905, N. S., VII, 347.

Box (E.) Shanghai folk-lore. (J. China Br. Roy. As. Soc., Shanghai, 1905, XXXVI, 130-156.) Second part of a collection of folk-lore items from the Chinese of Shanghai—the author is a missionary of the better class. Festivals (New Year, Lanterns, Spring, Summer, etc.), "magic" and folk-medicine, superstitions concerning animals (tiger, dog, goat, rat, raven, etc., snakes), the writ-

ings of the Christians (efficacious in disease against evil spirits, etc.), are considered.

Deecke (W.) Feuerkugeln und Meteoriten in 1001 Nacht. (Globus, Brnshwg., 1906, LXXXIX, 158-159.) Calls attention to several passages in the *Arabian Nights* referring to fire-balls, meteorites, etc. Out of meteoric iron "holy sounds" may have been fabricated.

Fraenkel (S.) Zur Fabel von Wolf und Kranich. (Z. d. Deutschen morgenl. Ges., 1905, LXVIII, 798.) Cites a Jewish variant (lion and partridge) of the fable of the wolf and the crane.

Goldstein (F.) Der Monotheismus Kanaans. (Globus, Brnshwg., 1906, LXXXIX, 234-235.) Author concludes that in pre-exile times the Canaanite state-religion was polytheistic, in post-exile times monotheistic, while in Christian times the appeal was made to Moses and his law.

Haberer (K. A.) Votive und Weihgaben der Japaner. (Corr.-Bl. d. D. Ges. f. Anthrop., München, 1906, XXXVI, 132-133.) Brief account of mother's offerings of votive figures for her child, fishermen's offerings of little boats, nets, etc., phallic offerings, animal offerings, pictures, etc. (e. g., in the Akusa temple in Tokio) in Japan.

Jochelson (W.) Ueber asiatische und amerikanische Elemente in den Mythen der Koriaken. (Intern. Amerik.-Kongr. Stuttgart, 1904, 1906, XIV, 119-127.) Treats of Asiatic and American elements in the myths of the Koryaks based on material collected during the Jesup expedition of 1900-1901. Of the 122 episodes or tales (out of 139) most commonly occurring in Koryak myths 83 percent are met with in the myths of the N. A. Indians, 29 percent in those of the Eskimo, and only 18 percent in the traditions and tales of the Mongol-Turkic peoples and the Old World. The American element in Koryak myths resembles in form the tales of the Athapascans, in content those of the Tlingit. These resemblances, J. holds, are clearly due to close relationship of the Indians and the peoples of N. E. Siberia in past times, if not, perhaps, to some extent at least, to a common origin of both.

Jochelson-Brodsky (Dina). Zur Topographie des weiblichen Körpers nordostsibirischer Völker. (A. f. Anthrop., Brnshwg., 1906, N. F., v, 1-58, 4 pl.,

- map, 14 figs., 9 tables.) Based on the author's special measurements (details of 30 items are given) of 30 Tungus, 32 Yukagir and 66 Yakut women, besides other measurements of 720 Koryaks, Tunguses and Yukagirs (men, women and children), in 1900-1902 in N. E. Siberia. Stature, cephalic index, head-diameters, anatomical facial index, jugal width of face, head-heights, nose-measurements, shoulder-height and breadth, manubrium-height, location of mammae and of navel, height of symphysis, length of trunk, pelvic measurements, legs and arms, feet and hands, and finger-reach, are considered in particular. Yakut women are not different from other Turko-Mongolian peoples; the Tunguses (men and women) measured differ from other Tungus tribes by their mesocephaly and smaller stature; the Yukagirs have the smallest stature of the Paleoasiatic groups investigated, the Kamchadales the lowest cephalic index, the Chukchee (closest to the Indians) the tallest stature and broadest heads; the Asiatic Eskimo are shorter than those of Alaska, but somewhat taller than the Chukchee, while their cephalic index resembles that of the Alaskan Eskimo. All absolute values are smaller in women and also most relative values. The relative height of the mammae is like that of European women; in peoples with short stature the trunk is relatively longer than in those with tall; the relation of pelvic distances to stature is constant. This monograph is a very good piece of work, exemplifying the value of women as field-workers in anthropology.
- Kahle** (B.) Zur verschluckten Schlange. (Globus, Brnshwg., 1906, LXXXIX, 112.) Cites a parallel to the "swallowed snake" legend from the region of the Araxes in Transcaucasia.
- Messing** (O.) Ueber den Gebrauch des Opiums bei den Chinesen. (Z. f. Ethnol., Berlin, 1906, xxxviii, 205-219, 2 maps.) Treats of the history of the introduction, use, effects, etc., of opium in China. The chief centers of opium cultivation are in Yunnan (since ca. 1850), Szechuan, Kwe-Chu, etc. In Szechuan 50 percent of the male population smoke opium (urban 20 percent, rural 50 percent). Many women smoke; whether children inherit the vice is not proved. One of the notable effects of opium-indulgence is a tendency to suicide. The new "China for the Chinese" movement will succeed in suppressing opium more than ever.
- de Moraes** (W.) Os nomes geographicos japonezes. (Bol. Soc. de Geogr., Lisboa, 1906, 161-165.) Discusses spelling, pronunciation, meaning, etc., of Japanese geographical names. Based on Takashika Okishio's *Map of Japan* revised by Muller.
- Niehus** (Helene) Zenana-Leben in Ostindien. (Globus, Brnshwg., 1906, LXXXIX, 247-249, 5 figs.) Treats of the *zenana* ("women's apartment") life of the rich Hindus and Mohammedans (the author spent many years in India). The daughter-in-law is more subject to the mother-in-law here than anywhere else on the globe. Ornaments are profuse. The Hindu mother really acquires position through the possession of a son.
- Oppert** (G.) Ueber die indischen Parias. (A. f. Anthrop., Brnshwg., 1906, N. F., IV, 149-159.) Historical-ethnographical sketch (origin and meaning of *Paria*, divisions, varieties, etc.) There are two sorts of *Parias*, outcast Hindus and people whose forefathers were the ancient, independent Dravidians. The *Parias* are susceptible of culture and have a better future before them, if properly treated and educated.
- Ein indischer Pilgerstab. (Z. f. Ethnol., Berlin, xxxviii, 161-163.) Describes a Hindu pilgrim's staff of *paldia* wood, well-made, with the month-names inscribed on its eight sides. The author adds notes on the divisions of time among the Hindus.
- Sandler** (A.) Medizinische Bibliographie für Syrien, Palästina und Cypern. (Z. d. Deutschen Palästina-ver., Berlin, 1905, xxviii, 131-146.) Alphabetical list of literature relating to the diseases occurring in Syria, Palestine and Cyprus, folk-medicine, superstitions, etc.
- Schults** (Dr) Noch ein Steinnagel aus Samoa. (Globus, Brnshwg., 1906, LXXXIX, 145, 1 fig.) Describes a "stone nail," found beneath the surface on the Vailele plantation, near Apia. Such implements may have been used, according to native belief and tradition, in the construction of the great canoes and houses of important chiefs; afterwards for other purposes as tools or "magic" objects.
- Schwally** (F.) Die biblischen Schöpfungsberichte. (A. f. Religsw., Lpzg., 1906, ix, 159-175.) Discusses the two accounts in Genesis of the creation of the world, their mythological relations,

origins, etc. S. recognizes the androgynous Adam and the production of the animal-world of Eden as Jahve's attempts to provide a companion for Adam—Eve is ultimately made from him. A Fiji myth is cited in comparison.

Sternberg (L.) Bemerkungen über Beziehungen zwischen der Morphologie der giliakischen und amerikanischen Sprachen. (Intern. Amerik.-Kongr. Stuttgart, 1904, 1906, XIV, 137-140.) Points out 10 items of resemblance in morphology between the Giliak and American Indian languages, as against the Ural-Altaic: Use of prefixes as well as suffixes, incorporation of pronouns in verb and noun in certain cases, use of pleonastic pronouns or numerals with class nouns, use of pleonastic auxiliaries with even active verbs in some cases, formation of many conjugational forms by adverbial post-positions, use of conjugations in which the first person singular and all three persons plural have one form and the second and third persons singular another (cf. Klamath, which has other peculiarities resembling Giliak), easy change by verbal suffixes of adjectives as well as nouns into verbs, the form and position of the direct object with respect to the verb resembles American "incorporation," use of several classes of cardinal numbers (for human beings, animals, trees, etc.).

Vollers (K.) Die solare Seite des alttestamentlichen Gottesbegriffes. (A. f. Religsw., Lpzg., 1906, IX, 176-184.) Treats of the linguistic and other evidence (Kebhōdh Jahwae, etc.) of solar elements in the Old Testament idea of God.

Wada (T.) Die Schmuck- und Edelsteine bei den Chinesen. (Mitt. d. Deutsche Ges. f. Natur- u. Völkerk. Ostasiens, Tokio, 1905, X, 1-16, 6 pl.) Treats of the use of stone jewels and ornaments by the Chinese, their history, introduction into the country, manufacture, symbolism, etc.—particularly the famous *yü* (nephrite, jadeite, etc.), the source of which has been Khotan. Central Asia is also the source of many other jewels. The author errs in attributing high appreciation of jade to the Chinese alone, and in positing a mass-influence for over 2,000 years of Malays in S. E. China.

Wehrli (H. J.) Beitrag zur Ethnologie der Chingpaw (Kachin) von Ober-Burma. (Intern. A. f. Ethnogr., Leiden, 1904-5, XVI, Suppl., xvi, 1-83, 5 pl.,

map.) Ethnological sketch of the Kachin of upper Burma, based on investigations made in 1897 and the literature (bibliogr. 59 titles) of the subject. Name, relations with Europeans, history and prehistory, origin-legends, tribal divisions, physical characters (great variation) endowment and capacity, family-organization, relationship names, political organization (bachelor's house, slaves, law, war, etc.), material culture (habitations, clothing, food, industries, trade), intellectual culture (religious ideas, *nai*-cult, mythology and legends, spirit-lore, shamans and spirit-sacrifices, shamans as doctors and prophets), customs and usages (birth and name-giving, weddings, death and burial, bonds and oaths), "science" and other knowledge (knotted cords, numeral-system, time-reckoning, etc.). The Kachin are a people in many respects primitive, in others clearly showing influence of higher races (culturally).

INDONESIA, AUSTRALASIA, POLYNESIA

Beobachtungen der Danielsschen Expedition nach Britisch-Neuguinea. (Globus, Brnschw., 1906, LXXXIX, 302-303.) Contains a few notes on the native tribes, from the account of the Daniels expedition in the *Geographical Journal* for March and April, 1906.

Bilder von der Gazelle-Halbinsel. (Ibid., 200-205, 5 figs.) Contains some notes on the natives. The illustrations represent some Baining criminals, a scaffold in honor of the dead in Matupi, a trade-canoe, a death memorial hut.

Chevallier (H.) Les charrues des Indes néerlandaises. (Intern. A. f. Ethnogr., Leiden, 1905, XVII, 188-193, 2 pl.) Describes briefly the native plows used in Java, Sumatra, Bali, Celebes, the Philippines, of which specimens exist in the Hamburg Ethnographic Museum, the museums of Leiden, Amsterdam, Trocadero (Paris), etc. One of the Javan plows is very simple; three sorts (Batak, Toba, Bencoolen) occur in Sumatra; the Bali plough is of clever construction; the Macassar plow resembles the Bali, but is simpler.

Fischer (H. W.) Een houten klopper om boombast te bewerken van het eiland Nias. (Ibid., 222, 1 fig.) Brief note on a wooden beater for working bark, from the island of Nias.

Groneman (J.) Het njirami of de jaarlijksche reiniging van de erfwapens en andere poesak's in Midden-Java. (Ibid., 81-90.) Describes the *njirami* or yearly cleansing of hereditary weapons and other heirlooms in central Java.

van Hooëvell (G. W. W. C.) Het paard in de Gorontaloesche landschappen. (Ibid., 177-182, 1 pl.) Treats of the horse (use, accouterments, etc.) among the natives of the Gorontalo country in Celebes, where the author resided 1885-1891. In the *toeti* or legendary histories of the Gorontalo tribes, the horse, called now *wadala*, is not spoken of. Horse-eating is common in several parts of Celebes.

— Zittend Ravana-beeld op gevleugelde Raksasa. (Ibid., 221, 1 fig.) Note on a Balinese figure of Ravana sitting on the back of a winged Raksasa.

— Der Kris von Süd-Celebes. (Ibid., 1906, XVIII, 64-67, 7 figs.) Describes the South Celebean *kris* (in Macassar *sele*), which in the handle, sheath, carrying, etc., differs from the forms in use in Java and other parts of the East Indian archipelago. Von H. sees in the handle of the South Celebean *kris*, not a modified Garuda form, but a stylized dog-penis, a relic of the cult of ancestors. This is reasonable, since up to the present no Hindu sculptures, *tjandi's*, or other antiquities have been discovered in Celebes.

Müller (J. W.) De Manpurengkè-feesten in de Minahassa. (Ibid., 1905, XVII, 222-224.) Describes, with text of accompanying songs and free Malay rendering, the *manpurengkè* festivals of the Ajeradidi of Minahassa, Celebes, as seen by the author. They are night-feasts held to celebrate any interesting incident in a family.

Parkinson (R.) Baumrindenkleidung in Deutsch Neu-Guinea. (Ibid., 222.) Reply to observation of P. Schmidt regarding information received from missionary, duly acknowledged by P.

Schmeltz (J. D. E.) Beiträge zur Ethnographie von Neu-Guinea. X. Die Stämme in der Nachbarschaft des Merauke-Flusses. (Ibid., 194-219, 6 pl., 18 figs.) Treats of the Tugeri tribes about the Merauke river in New Guinea. Food and narcotics and objects used in connection therewith (no pottery; coconut water-holders), clothing and ornament (hair, ear, nose, breast, arm, hip, pudenda), houses and furniture,

hunting and fishing, transportation (baskets, dug-outs), weapons (clubs, bow-and-arrow), signs of peace, etc., music, dance and accompaniments ("dance-clubs," wooden figures of animals), burial. Based on the De Jong collection in the Leiden Museum.

— XI. Zwei Gegenstände von Niederl. Nord Neu-Guinea. (Ibid., 219-220, 2 figs.) Notes on an ornamented palm-wood bow and a carving of a human bust-figure in brown hard wood.

Schmidt (P. W.) Die Mon-Khmer-Völker, ein Bindeglied zwischen Völkern Zentralasiens und Australiens. (A. f. Anthrop., Brnschw., 1906, N. F., V, 59-109, 3 figs.) Argues that the Mon-Khmer peoples of Farther India are a link between the peoples of Central Asia, such as the Indian Munda, Khasi, etc., with whom go also the Nicobar, Semang, Senoi—and the "Austronesian" (used by S. for "Malayo-Polynesian") peoples of the Pacific. The whole group S. designates "Austral" (Austriach) with "Austroasiatic" and "Austronesian" branches. Pages 82-109 are occupied with the demonstration of grammatical, morphological, and lexical affinities between Nicobar-Mon-Khmer and Khasi, Santal and Mon-Khmer-Khasi-Nicobar, and the "Austronesian" and "Austroasiatic" languages generally.

Schwarz (J. A. T.) Ethnographica uit de Minahassa. (Intern. A. f. Ethnogr., Leiden, 1906, XVIII, 44-63, 3 pl., 9 figs.) Treats of the *watu pintutengan*, or "stone where the division took place," six photographs in which figure old Minahassa clothing, etc., the weaving of *wa'u* and *lanut*, five old Minahassa *sintka'dan*, or priestly staves.

Sierich (O.) Samoanische Märchen. (Ibid., 1905, XVII, 182-188.) Nos. XXIII-XXVII of Samoan märchen,—native text and German version. Also native texts of four brief children's songs.

Thomas (N. W.) The religious ideas of the Arunta. (Folk-Lore, Lond., 1906, XVI, 428-433.) Discusses the religious ideas of the Australian Arunta as set forth in Spencer and Gillen's recent work and cites information recently received by the author from M. Strehlow, a German missionary at Hermannsburg, who is "a master of their language." T. finds no support for the theory that these ideas of the Arunta are the product

of Christian influence, and it is not proved that they are derived from neighboring tribes. They are possibly in process of evolution by a portion of the tribe as a substitute for a primitive atheism.

- Volz (W.)** Beiträge zur Anthropologie und Ethnographie von Indonesien. II. Zur Kenntnis der Mentawai-Inseln. (A. f. Anthropol., Brnschw., 1906, N. F., IV, 93-109, 3 pl., 14 f.) Based on a visit to the Mentawai islands, off Sumatra, in 1900. Treats of physical characters (measurements of 19 men and 6 women), tattooing (7 parts of body in men, 3 in women; V. considers tattooing not "clothing," but outlining of the anatomical parts of the body,—"interpretations" are later and often mistaken), artificial deformations (filing teeth, depilation of body), clothing (European dress is becoming more and more common with the women), coconut protectors of three sorts. The Mentawai islanders seem to be homogeneous, mesocephalic, Mongoloid people, closely resembling the Bornean Dyaks physically, as well as in the use of tattooing, etc. V. speaks unfavorably of Maas's recent work on these people, *Bei liebenswürdigen Wilden* (Berlin, 1902).

AMERICA

- Anfänge der Kunst im Urwald.** (Globus, Brnschw., 1906, LXXXIX, 105-108, 2 figs.) Résumés Dr Theodor Koch-Grünberg's *Anfänge der Kunst im Urwald* (Berlin, 1906, pp. xv, 70; 63 pl.), which contains numerous drawings made by the Indians of the upper Negro-Yapura region in Brazil. (See *American Anthropologist*, 1906, VIII, 381.)
- Bandelier (A. F.)** Ueber Trepanieren unter den heutigen Indianern Boliviens. (Intern. Amerik.-Kongr. Stuttgart, 1904, 1906, XIV, 81-89.) This article is identical in content with the author's paper "Aboriginal Trephining in Bolivia," published in the *American Anthropologist*, 1904, VI, 440-446.
- Bloch (J.)** Der Ursprung der Syphilis, Morbus Americanus. (Ibid., 57-79.) Brings together old and new evidence, historical, osteological, etc., to show the American origin of syphilis, which Dr B. thinks is now scientifically proved. Numerous authorities are cited. See also a later volume on the same topic by Dr Bloch, and compare Bourne, Col-

umbus, Ramon Pane, etc. (Am. Antiq. Soc., 1906).

- Boas (F.)** Physical types of the Indians of Canada. (Ann. Arch. Rep. Ont. 1905, Toronto, 1906, 84-88.) Briefly describes the Eskimo, North Pacific coast, western plateau and Mississippi valley types, of which the second is remarkably variable. The New England type is intermediate (skull-diameters) between the Eskimo and the Mississippi valley types. A distinct type may also exist on the southern part of the Pacific coast. The Indians of the southern interior of British Columbia resemble rather those of the plains. The Aleutians differ from the Alaskan Eskimo in skull-type. According to Dr B., "we must consider the inhabitants of N. E. Asia and of America as a unit divided into a great many distinct types, but belonging to one and the same of the large divisions of mankind."

— The Indian languages of Canada. (Ibid., 88-106.) Sketches the chief grammatical and morphological characters of the Eskimoan, Athapascan, Algonquian, Iroquoian, Kitunahan (Kootenay), Salishan, Wakashan, Tsimshian, and Haidan languages. Dr B. holds that a generalized view of the type of American languages (e. g., as all "incorporating," "polysynthetic," etc.) is not admissible, "a great variety of forms" actually occurring.

— The Eskimo. (Ibid., 107-116.) Treats briefly environmental conditions, occupations (very uniform), inventions (remarkably ingenious), hunting and fishing, habitations, lamp (most important of household belongings), implements and instruments, dogs and sled, clothing, decorative art (not remarkably developed, on the whole—foreign influences noticeable), social organization (very simple), marriage (both polygamy and polyandry occur), religious ideas and practices (shamanism, taboos, witchcraft, slight ritualistic development, mythologic concepts meager and unsystematic, few creation legends, folk-lore rich, essentially human and dealing chiefly with exploits of heroes, deeds of shamans, village-events), etc. The Eskimo have been influenced by the Indians and have influenced the N. E. Siberian peoples.

— The Salish tribes of the interior of British Columbia. (Ibid., 219-225.) Treats briefly habitat, occupations (hunting and fishing), clothing, habitations

(permanent house is semi-subterranean lodge), ornamentation, weapons, games, decorative art (slightly developed), painting (crude), social organization (very loose), potlatch (copied from coast tribes by those of more western plateau), burial, religious concepts and practices (religious ideas simpler than those of coast Indians, puberty ceremonials quite complex), spirit-lore, mythology (coyote is central figure; thunder-bird; transformer-tales). Previous Salish culture was even simpler than the present. Influence of coast Indians and Plains tribes has occurred. The more complex social and religious elements on the plateaus are of foreign origin.

The tribes of the North Pacific coast (Ibid., 235-249.) Discusses briefly economic conditions and industries, habitations, furniture and utensils, weapons, food, decorative art ("practically all objects utilized are elaborately decorated; animal motives almost entirely"), social organization (very complex with remarkable differences among various tribes; great influence of Tlingit and Haida group system on their immediate neighbors; influence of crests on development of semi-realistic art, religious significance of crest), barter and exchange, "potlatch" and symbolic property, supernatural beings, secret societies and their rituals, dances, etc., pantomimic performances of family legends, mythological concepts (cluster about raven), cosmogonic ideas and traditions, etc., of the Tlingit, Haida, Tsimshian, Kwakiutl, Bellaçoola, Coast-Salish and Nootka tribes. In the southern group the characteristic features of North Pacific coast culture are weakest.

Bolle (C.) *Farbige Arbeiter und Landwirte.* (Globus, Brnshwg., 1906, LXXXIX, 253-256.) Treats of the colored laborers and their relation to their employers and to the economic system of the country (particularly in Brazil, where the author has spent most of his life). B. concludes that a benevolent and sympathetic patriarchal system would best suit laborers and planters. But peoples must not be ruled by laws antagonizing their nature, traditions, etc.

Boyle (D.) Notes on some specimens. (Ann. Arch. Rep. Ont. 1905, Toronto, 1906, 10-33, 41 figs.) Treats of flints, including "the most northerly Ontario aboriginal relic in the Museum" (a "fish-cleaner" from Lake Temagami);

clay and stone pipes, clay pots (a large perfect specimen and a toy one); curved copper tool from Simcoe county; Sioux pictograph on buffalo-hide and Blood Indian drawing on rawhide.

— The making of a Cayuga chief. (Ibid., 56-59.) Note on chief-making among the Cayugas of Tuscarora township in May, 1905, with reprint of Hale's description from the *Iroquois Book of Rites*. Also note on adoption (Dr B. was adopted in 1892). The chief-making was disappointing, "after reading the highly, but probably not too highly colored description [of Hale]."

— European contact and the introduction of disease among the Indians. (Ibid., 59-65.) Chiefly a defence of John McLean, one of the pioneers of the N. W., as to his "religious character."

— The Iroquois. (Ibid., 146-158.) Treats chiefly of the "priscan home" of the Iroquois, legends and theories relating thereto—Cusick in particular. Dr B. favors a southern origin (Kentucky and southern Ohio) for the Iroquois; also thinks that the enmity of the Micmacs and the Iroquois was a chief cause of the northern migration of both.

Chamberlain (A. F.) The Beothuks of Newfoundland. (Ibid., 117-122.) Anthropological and ethnological-historical sketch, resuming our knowledge of these extinct Indians, whose language forms a distinct stock.

— Indians of the eastern provinces of Canada. (Ibid., 122-136.) Anthropological and ethnological account of the Micmac and closely related tribes, Montagnais, Naskapi, etc. Résumés present knowledge.

— The Kootenay Indians. (Ibid., 178-187.) Anthropological and ethnological sketch resuming present knowledge of these Indians whose language forms a distinct stock. See also p. 97.

Cringan (A. T.) Indian music. (Ibid., 158-161.) Based on analysis of numerous Iroquois songs, which reveals "many striking peculiarities of rhythm and tonality." Indian music is decidedly unconventional; the rhythm is often exceedingly complicated. The earlier Indian melodies seem to have developed from a simple combination of the first, third, and fifth tones of the scale.

Fischer (J.) Die Kartographische Darstellung der Entdeckungen der Normanen in Amerika. (Intern. Amerik.-Kongr. Stuttgart, 1904, 1906, XIV,

- 31-39.) Discusses the types of maps of Greenland, going back to Claudius Clavius (who had been in that country himself) and to Donnus Nikolaus Germanus. Of the first or "correct" type 6 large and 7 small MS. maps are known. Dr F. still doubts Columbus' direct knowledge of Norse discoveries.
- Fraas (E.)** Vergleichung der amerikanischen und europäischen Juraformation. (Ibid., 41-45.) Compares the American and European Jura formations. In the Jura period when all Europe was an archipelago in a great ocean America was already a great continent.
- Fric (V.)** Eine Pilcomayo-Reise in den Chaco Central. (Globus, Brnshwg., 1906, LXXXIX, 213-220, 229-234, 15 figs., map.) Gives results of journey on the Pilcomayo in the central Chaco in 1903-1904. Notes on the Pilagá (marriage presents and ornamental motif, hunting wasp honey, the *pacuná* or widows' duel, prayer to the new moon, clothing and ornament, fire-making, intoxicants, character, family life, war, etc.), Toba, etc.
- Gerard (W. R.)** The "Virginia" potato. (Scientif. Amer., N. Y., 1906, xcv, 187.) Interesting account of the various names of the potatoes (sweet and common) and of the other tuberous plants with which they were confused by the early colonists, explorers, and writers. In particular the native names of six subterranean vegetable products used as food by the Renape Indians of Roanoke island are etymologized. The potato was not introduced from Virginia into Ireland, as is commonly believed, but the specimens that reached the latter were taken from the cargo of a captured Spanish vessel home-bound from Santo Domingo.
- Gluffrida-Ruggeri (V.)** Un cranio Guayachi, un cranio (incompleto) Ciamacoco e un cranio Fuegino. (A. d. Soc. Rom. di Antrop., 1906, XII, 235-254, 2 pl.) Describes, with measurements, a Guayachi (female) and an imperfect Samuco (male) skull, both collected by Boggiano (indices 77 and 76.2); also a male Fuegian skull (index 84.9) collected by the Salesian missionary Bouvaire. Dr G.-R. seems to recognize in the Fuegians, Paupians, etc., a South American type (mesocephalic in primitive form) with "pre-Mongolian" affinities.
- Quattro scheletri di Indiani Cavinás, Sud-America Centrale. (Ibid., 259-277.) Describes, with measurements, four skeletons (3 females, 1 male) of the Bolivian tribe of Cavinás, who originally inhabited the left bank of the river Madre de Dios,—collected by Prof. L. Balzan. The four skulls resemble one another much and "represent a pure nucleus," from the craniometrical point of view.
- Hamy (E. T.)** Le centenaire du retour en Europe d'Alexandre de Humboldt et d'Aimé Guajaud de Bonpland, 3 août 1804. (Intern. Amer.-Kongr., Stuttgart, 1904, 1906, XIV, xxxv-xlvii.) Gives an account of Humboldt and Bonpland and their scientific investigations in America.
- Hill-Tout (C.)** The Salish tribes of the coast and lower Fraser delta. (Ann. Arch. Rep. Ont. 1905, Toronto, 1906, 225-235.) Treats of social organization and customs (classes and castes, name-giving, marriage), religious beliefs and practices (totem-crests, belief in protecting spirits the chief feature of Salish religion, guardian spirits acquired by dreams and visions, religious ideas not ethical or moral, no idea of Supreme Being, spirit-lore), material culture (habitations, food, dress, etc.).
- Jones (W.)** Central Algonkin. (Ibid., 136-146.) Treats of the social, material and religious life of the Ojibwa in their larger aspects; society, government (loose even at the first advent of the French), property (rights vaguely defined), dwellings (bark house and oval lodge), food (mostly cooked; they were "a typical people of the woods"), fire (bow-drill, flint and tinder), clothing, weaving (heddle-loom), transportation ("packing" with tump-line, toboggan, snow-shoe, canoe), games (original of lacrosse, woman's ball, throwing-stick, dolls, etc.), weapons (bow-and-arrow, clubs), picture writing on birch-bark, religion ("firm-belief in omnipresent cosmic mystery," mythology rich in characters, the "great one" was Nana-bozho) and religious practices (healing sick, sleight of hand, power of prophecy, *midwintwin*). On the theory of getting possession of the soul the Ojibwa hunted for game.
- Kapff (E.)** Anteil der Württemberger an der Kolonisation Amerikas. (Intern. Amerik.-Kongr. Stuttgart, 1904, 1906, XIV, xlviii-lvii.) Treats of the share of Württembergers in the settlement of America—Ehinger and Rents in Santo

Domingo, Ehinger and Sailer in northern S. America (1528); the mass-immigration of 1709 in New York, Pennsylvania, and the Carolinas, and the subsequent one of 1717. The Suabian communities founded by Rapp, etc., are also referred to. Leutzer, who painted "Washington crossing the Delaware," was a Suabian.

Koch-Grünberg (T.) *Die Maskentänze der Indianer des oberen Rio Negro und Yapurá*. (A. f. Anthrop., Brnschw., 1906, N. F., IV, 293-298, 5 fgs.) Brief descriptions of the mask-dances (butterfly, wood-spirits, jaguar) of the Kobéua Indians of the upper Rio Negro and Yapurá. The butterfly, *találake*, is one of the most dangerous spirits; likewise the spiker, *má'ka*, and a leaf-insect, *budyáúúbo*. Feared also are the anthropomorphic wood-demons *Makuké* and *Koháké* and their wives. The text of the jaguar-song is given. Dr K. thinks the object of these mask-dances is to drive away spirits and to produce fertility. While among the Indians of this region, 1903-1905, he obtained some 130 masks, of which 80 are different, indicating the large number of demons represented in these ceremonies.

— *Die Indianerstämme am oberen Rio Negro und Yapurá und ihre sprachliche Zugehörigkeit*. (Z. f. Ethnol., Berlin, 1906, xxxviii, 166-205, 1 pl., 15 fgs., map.) Describes briefly the Indian tribes which the author has himself visited or from which he has collected linguistic material. The peoples concerned belong to at least 6 distinct stocks: Arawakan (Baré, Baniva, Uarekená, Yaviteros, Tariana, and numerous other tribes); Betoyan (Tucano, Uananá or Kótítia, Kobéua or Hähána, Koros, Makuna, Pápuli-hähána, Uásóná, Ualana, Móxáda, Pamoá, etc.); Makuan (numerous tribes wandering between the Caiary and its tributaries and between the Rio Negro and the Yapurá—a new linguistic stock); Cariban (Umáua, Hianákata, Carijona, and others); Miranhan (tribes centering on the Rio Cauuary and westward between the Yapurá and the Iça); and Uitolan (neighbors of the Miranhan, numerous tribes between the upper Yapurá and Iça, particularly on the Rio Carapaná and the Igaraparaná—another new linguistic stock). Pages 190-203 are devoted to language, brief vocabularies of 8 Arawakan, 11 Betoyan,

1 Cariban, 3 Makuan, and 2 Miranhan dialects being given.

Mercante (V.) *Investigaciones craneométricas en las escuelas nacionales de La Plata*. (Arch. de Pedag. y Ciencias afines, La Plata, 1906, I, 41-79.) Gives three measurements (ant.-post, max. transv., bizygom.) of 652 male and 549 female pupils between the ages of 6 and 30 years in the Normal School, Colegio Nacional and Escuela Graduada Anexa, representing descendants of the numerous nationalities now present in Argentina. The variation in the extremes of the cephalic index is great, but the general type is brachycephalic, the proportion of dolichocephalic being very small. The girls are more brachycephalic.

Meyer (H.) *Die Vorzeit des Menschen im Äquatorialen Andengebiet*. (Intern. Amerik.-Kongr. Stuttgart, 1904, 1906, XIV, 47-56.) In the Andean highlands no traces of diluvial man have yet been found, the oldest human relics in the equatorial region here indicating a more advanced culture than that of Pampean man (associated with the remains of extinct mammals). These relics the author attributes to "the Quito, who inhabited this plateau before the Cara and the Inca." Man took possession of these regions in the beginning of the present post-glacial period.

Nielsen (Y.) *Die ältesten Verbindungen zwischen Norwegen und Amerika*. (Ibid., 91-99.) Discusses the Norse voyages to America and the contact of the explorers with the aborigines and the references to the latter in the old text. Dr N. believes that "in the eleventh century the coasts of Nova Scotia were inhabited by Eskimo"; also that the voyage of King Harold Haardraade was to Vinland, not to Greenland. The people of Markland, Vinland, Greenland, were all Eskimo, but in Nova Scotia, etc., Indian tribes may have been their close neighbors.

Olshausen (—) *Ueber Wurfspeere von einem der Indianerstämme am Ucayali*. (Z. f. Ethnol., Berlin, 1906, xxxviii, 229-231.) Treats of seven throwing-spears from Indian tribes on the Ucayali and now in the Royal Ethnological Museum. They resemble the spears brought from the Yapurá by Dr Koch, and their points are brown from urali poison.

Preuss (K. T.) *Religionen der Natur*.

- völker. Amerika. (A. f. Religsw., lpsz., 1906, ix, 114-142.) Résumés reviews of recent books and monographs on the religion and mythology of the Indians of North, Central, and South America, by Hill-Tout (Siciatl), Goddard (Hupa), Dixon (Maidu), Kroeber (California culture-types), Owens (Musquakie: Sauk and Fox), Kroeber (Arapaho social organization), Dorsey (Arapaho sun dance), Fletcher (Pawnee Hako ceremony), Voth (Oraibi Oaqöl ceremony), Fewkes (Hopi Katcinas), Seler (Mexican codex, representations of sacrifices on monuments, etc.), Ehrenreich (primitive myths of America), Baudelier (Tuticaca myths and traditions).
- Ruge** (W.) Ein Globus von Gemma Frisius. (Intern. Amerik.-Kongr. Stuttgart, 1904, 1906, xiv, 3-10.) Describes a globe by Gemma Frisius (ca. 1550), the South American names on which are of particular interest, belonging with those on the Mercator map of 1541, and of the mappemonde of Vopell.
- Sapper** (K.) Der Einfluss des Menschen auf die Gestaltung des mexikanisch-mittelamerikanischen Landschaftsbildes. (Globus, Brnshwg., 1906, LXXXIX, 149-152.) The earliest advent of man in this region is post-diluvial. The land was populated partly from the north, partly from the south—the old "civilized" peoples (Aztecs, Mayas) being of northern origin. Much change in the aspect of the country was due to the pursuit of agriculture; but great alteration occurred through the Spanish conquest, by disturbance of native settlements and by the introduction of domesticated animals and plants. Increase of population in the nineteenth century and the inroads of modern culture (industrial and economical in particular) have also made significant changes.
- Solberg** (O.) Ueber die Bā'hos der Hopi. (A. f. Anthropol., Brnshwg., 1905, N. S., iv, 48-74, 3 pl., 14 figs.) Treats, on basis of author's observations in the winter of 1903-4, the symbolism of the *bā'hos* of the Hopi (Moqui) Indians, particularly of the pueblos of Mishongnovi and Shipaulovi (his chief informant was Sikyapiki, the old Snake-chief of the latter). Material, form, color, etc., are discussed. S. does not agree with Fewkes' interpretation of the *bā'hos* as symbolic corn-offerings, etc.
- Stolpe** (H.) Ueber die Forschungsergebnisse der schwedischen Grönland-Expedition vom Jahre 1899. (Intern. Amerik.-Kongr. Stuttgart, 1904, 1906, xiv, 101-105, 5 pl.) Résumés results of the Swedish investigations of 1899 of Eskimo remains (6 "stations" were found, the one at Cape Mary on Clavering island contained a multitude of graves—the last living Eskimo was seen there in 1823 and the disappearance of the tribe is unexplained) on the N. E. coast of Greenland between 70° and 75° lat. The finds include graves, ruins of winter and traces of summer dwellings, lamps, women's knives, wooden shovels, knives of iron and bone, kayak-scrappers, tools of bone and walrus teeth, harpoon and spear points, bows and arrows, throwing-sticks, toy-human and animal figures, etc. A wooden bowl in the grave of a girl contained dolls, a woman's knife, etc. Most interesting of all perhaps were some miniature models of winter-houses made by children. Dr S. believes that the Eskimo reached N. E. Greenland by the same northern route as the Arctic wolf and the muskox.
- Thomas** (C.) Historical account [of the Indians of Canada], (Ann. Arch. Rep. Ont. 1905, Toronto, 1906, 71-83.) Historical notes on the Indian stocks and tribes of Canada, particularly the Algonquian and Iroquoian. Dr T. believes that the Indians of the Atlantic section came from the northwest—the region north of L. Superior was one great center of distribution. Man probably first appeared in North America on the N. W. coast in the post-glacial age, and the Eskimo had reached Greenland and the Algonquians the Atlantic coast by the tenth century at least.
- Varona** (E. J.) Cuba precolumbina. (Rev. Fac. Letr. y Ci., Habana, 1906, ii, 156-161.) Brief general discussion, with references to Bachiller y Morales' rather chaotic *Cuba Primitiva*, Cornilliac's *Anthropologie des Antilles*, de Arma's *La fábula de los Caribes*, etc.
- Wolkenhauer** (A.) War die magnetische Deklination vor Kolumbus erster Reise nach Amerika tatsächlich unbekannt? (Intern. Amerik.-Kongr. Stuttgart, 1904, 1906, xiv, 11-29.) Discusses views of Bertelli, d'Avezacs, Hellmann, etc. Dr W. seeks to prove that "the compasses of Columbus afford palpable proof for a knowledge of magnetic declination," as d'Avezacs maintained.

ANTHROPOLOGIC MISCELLANEA

The Archeological Congress at Vannes. — The second congress of the Prehistoric Society of France was held August 21-26 in the capital of the Department of Morbihan, the classic land of megalithic monuments, at any rate so far as France is concerned. The attendance exceeded that of the very successful first congress held at Périgueux last year. *Nature* (London, October 4, 1906) gives the following report of the congress:

The inaugural meeting at 10 a. m. on Tuesday, August 21, was graced by the presence of prominent citizens. Speeches were made by the Mayor of Vannes, Senator Riou, Professor Adrien de Mortillet, president of the congress, and by Dr Marcel Baudouin, the secretary, who insisted on the need of providing a special building to house the rich collections of the Société polymathique, and on the desirability of creating a national Megalithic park comparable to the Yellowstone National Park of the United States. The president of the local committee, M. Morio, welcomed the congress in the name of the Société polymathique, the museum of which was much admired by the parties which visited it in the afternoon. It includes collections from the principal tumuli of the neighborhood, excavated by the society during its many years of existence; there are, for example, the splendid necklaces of callais beads, a fine series of fibrolite axes, curious stone disks, scarcely found outside this area, and huge polished celts. In the evening M. Riou gave a reception at the Mairie, and various toasts were proposed.

The numerous papers and the lively discussions attest the success of the congress. M. Rutot, the curator of the Royal Museum of Brussels, led off with a consideration of the question of the Paleolithic bed of Havre; he maintained that there was no question of displacement; what had taken place was a falling in of the superincumbent earth and erosion of the cliff. Dr Jussel then described a new prehistoric bed discovered at La Longère, near Nogent-le-Notrou (Eure-et-Loire), where objects of varying appearance and disputable age have been found, assigned by the author to the Flénusien age of Rutot. M. Hue brought forward a new method of measuring the skulls of Canidæ, which M. Baudouin urged all archeologists to apply to the measurement of other animals. Dr Guéhard appealed to the archeologists of the world to bring into existence a

map of prehistoric monuments, the preliminary steps toward which have been made by the Société préhistorique de Paris.

Two long sittings were held on the morning and evening of the second day. The first subject was the Paleolithic age of Brittany, introduced by M. Sageret, of Carnac, who was followed by MM. de Mortillet, Rutot, and Baudouin, who showed why beds of this epoch are rare: the Neolithic period has attracted more attention in Brittany (Mortillet); Brittany is only the central area of Quaternary Brittany, which was united to the British Isles until the Magdalenian period (Rutot), and to a southwestern continent which survives in Bell-Ile, Quiberon, Houat, etc. (Baudouin). Some stones of this period were exhibited by M. Landren, of St Nazaire, under the name of *coliths*; the Rennes flints of M. Pavot were not regarded as of prehistoric character. Dordogne, the scene of the last congress, next claimed the attention of the meeting. M. l'Abbé Chastaing offered some remarks on the hammers for use with bones discovered in the cave of Le Moustier, and M. de Ricard directed attention to the new Magdalenian station of Rocheyras, Drôme valley. Finally, M. de Mortillet brought into prominence the Placard cave (Charente), and the various industries there practised; in this connection there arose a discussion on the pre-Solutrian age of M. l'Abbé Breuil, for which M. Rutot and l'Abbé Chastaing took up the cudgels.

M. Rutot spoke on the question of the Micoque beds, on the Vézère, after dealing with the Strépyien of France. He showed that the Chelles-Moustérien of Micoque was in reality Strépyien, and that this stage fell between the Chelléen and the Mesvinien, and not between the Chelléen and the Moustérien. M. Feuvrier (of Dôle) directed attention to a Magdalenian cave in the Jura, and M. J. Dharvent exhibited a sculptured flint of the Moustérien age.

On Wednesday evening Neolithic problems were approached; among the papers were those of Dr Martin, on the false tumulus of La Motte Beudron (Deux-Sèvres); M. Goby, on the tumuli of the districts of St Vallier de Thiay, St Cézaire, and Grasse (Alpes Maritimes); and M. Roerich, of St Petersburg, on sculptured Neolithic flints. M. Rutot then turned to the Flénusien, or lower Neolithic, in France and showed that traces could be found from one end of France to the other. Dr Montelius then gave a summary exposition of the Stockholm collections from the Robenhausen and other periods.

On the morning of Thursday the pottery of the dolmens came up for discussion; M. Fourdrignier, of Paris, showed that the study of fingerprints might be of value, but it was pointed out that the information

could throw little light on questions of race. Other papers were those of M. Goby, on the dolmen pottery of the Grasse district, and the micaeous pottery of Camp du Bois-du-Rouret (Alpes Maritimes). After a remarkable paper by Dr Stjerna on the Scandinavian origin of the Burgundians came papers on megalithic monuments, among them those of Dr Jousset, on the Carnacean age of Perche; Dr Coutil, on megalithic monuments in Normandy; M. José Fortès, on megalithic sculptures in Portugal; M. Tavarès de Proença, on the classification of Portuguese dolmens; M. Coutil, on his exploration and restoration of the tumulus of Fontenay-le-Marmion (Calvados) in 1904 and 1906. Important communications were read by Dr Waldemar Schmidt, on megalithic monuments in Denmark; by Dr Montelius, on the same in Sweden; by Dr Baudouin, on five years' excavations and restorations of the megaliths of Vendée. A popular evening lecture on the dolmens of Brittany, illustrated by lantern-slides, had already been given in the theater on the previous evening.

On Thursday evening the subject of prehistoric gold in Brittany and Vendée was treated by Count Costa de Beauregard and Dr Baudouin, and much was said on the significance of menhirs and of the alignments. For M. de Paniagua they are evidence of a phallic cult, for M. Rutot they are sign-posts, for M. Montelius and for Dr Baudouin tombstones, and the last view finds support in the results of the excavations of Dr Baudouin and M. Hue. The views on the alignments were varied; they were *ex-votos*, and they were connected with the Trojan war; but the majority hesitated to express an opinion. M. le Rouzic, Dr Baudouin, and others, subject to more extensive researches in Brittany and elsewhere, were disposed to connect them with a solar cult. Among other papers, Dr Atgier discussed the megalithic enclosures, and M. de Clérambant galgals, or cairns, in Indre-et-Loire.

M. de Villemereuil proposed a motion on the State protection of megaliths. Speaking generally, it may be said that both the discussions and the numerous papers were of much interest, and the meetings were attended by more than a hundred members.

The following three days were taken up with excellently organized excursions; weather, vehicles, meals, and speeches, all were of the best, and more than a hundred took part in each excursion. The first day was consecrated to the Gulf of Morbihan, and among the objects visited were the cromlechs of Kergonan, the tumulus of Gavr'inis, and the magnificent dolmens of Locmariaquer, including the largest known menhir. On the second day visits were paid to the little-known alignments of St Pierre, in

Quiberon, and of Erdeven, and to the dolmens of Roch-en-Aud, Crocuno, Rondosse, etc.

The third day was reserved for Carnac and its marvelous alignments, Menec, Kermario, and Kerlescant. Worthy of special mention were the visits to the tumulus of Moustoir-Carnac, and to the Miln Museum, where the secretary of the congress paid a well-deserved tribute to the brilliant efforts of the regretted founder and his enthusiastic and devoted pupil, M. le Rouzic. Finally, a visit was rendered to the splendid tumulus of St Michel-Carnac, so well cared for by M. d'Ault du Mesnil, president of the Megalithic Monuments Commission, who himself acted as guide.

In the course of the three days numerous speeches were made by foreign members, who were roused to enthusiasm alike by the monuments and by the organization of the gathering. Mention must be made of the utterances of M. Rutot, on the Gulf of Morbihan; of Dr Baudouin, on submerged megaliths in Brittany and Vendée, and on the technique of restorations; and of the erudition of M. de Mortillet, as well as of the demonstrations of MM. d'Ault du Mesnil and le Rouzic; the latter also spoke in the Miln Museum on the alignments of Carnac, and on his researches on the spot.

As the scene of the next congress in 1907 Abbeville was suggested by more than one speaker. Before the congress separated, the healths of M. de Mortillet, Dr Baudouin, and M. Giroux were proposed in eulogistic terms. As M. Rutot said, a society that has been able to accomplish so much in its infancy will do much more in its maturer years, and this was equally the opinion of the foreign savants who attended the meeting.

The "Omaha Man."—And now comes another "early man," this time from Nebraska, regarding which Messrs E. H. Barbour and H. B. Ward, of the University of Nebraska, address the following communication to *Science* under date of October 27:

In a circular mound recently opened on a Loess hill north of Florence, near Omaha, Nebraska, various skeletal parts, and eight human skulls of a primitive type were exposed. The credit of the discovery belongs to Mr Robert F. Gilder, of Omaha, who described and figured the skulls in the *World-Herald*, October 21.

That there was intrusive burial in this mound is apparent from the fact that the skulls found below a layer of burned clay are of a much more primitive type than those found above it. Already five skulls have been taken from the lower level, and three from the upper, and others are in evidence and will be dug out later. Those of the upper layer probably belonged to Indians of a later period, and may be left out of account for the present. The skulls of the

lower layer are low-browed and inferior, the superciliary ridges being thick and protruding, the distance through the temples narrow, and the frontal eminences being as feebly developed as in Neanderthal man. The low arch of the skull is not the result of head-binding, but is normal and characteristic as is evidenced by five crania, two of which are fairly complete. Unfortunately the occiput is fragmentary or wanting in the specimens now at hand.

The skulls are brachycephalic, and extremely narrow in transverse diameter through the temples, expanding rapidly at the parietals. Length of skull 182 mm. ; minimum breadth 93 mm. ; maximum breadth 160 mm.

In shape and size the mandible agrees well with that of modern man, although the following marked differences are to be noted : the bone, particularly in the region of the symphysis, is far heavier, the muscular scars more prominent, and the third molar in each case is ground to the very gum, while the second and third are ground in a diminishing ratio. The canines are weak and scarcely distinguishable from the incisors, and the space between the molars and the base of the coronoid is wide.

The limb bones indicate a stature of six feet, the femora being somewhat stronger, and the humeri being somewhat weaker than might be expected. The femora, which are massive, manifest an interior curvature more pronounced than ordinary, and in cross section they appear triangular through the great development of the *linea aspera*, all muscular scars and tuberosities are noticeably prominent, the scar for *ligamentum teres* being elliptical in outline, deep and nearly twice as long as broad.

The skulls of the Nebraska man seem to be inferior to those of the mound builder, but for the present at least will be viewed as early representatives of that tribe [sic].

In corroboration are the flint implements or chips found associated with the skulls and bones, and the mode of burial. As work progresses a detailed illustrated report will be made.

Robert C. H. Brock, a generous patron of the science of anthropology, died in Philadelphia, August 8, 1906. Mr Brock was born in Philadelphia, July 26, 1861, and was educated at Dr Ferris' School in Philadelphia, Saint Paul's School in Concord, New Hampshire, and at Worcester College, Oxford, England. He studied law in the office of the Honorable George M. Dallas, and was admitted to the bar in 1884. He became a partner in the firm of W. H. Newbold's Son and Company, bankers, in 1888, and retired in 1894. He then traveled in Europe to regain his health, which had become impaired, and on his return devoted himself to scientific and charitable pursuits. As a member of the board of managers of the Department of Archæology of the University of Pennsylvania he took an active interest in the Free Museum of Science and Art, to which he made large gifts—notably his very valuable collection of gold and

silver coins. Mr Brock was vice-president for Pennsylvania of the Archaeological Institute of America, a director of the Academy of Fine Arts of Philadelphia, a manager of the Franklin Institute, and a member of the American Philosophical Society and of many other scientific and literary organizations. In 1904 he was elected colonel of the Second Regiment, N. G. P., which office he held until the time of his death.

Mr Brock was a man of wide culture and warm sympathies, and his early death is deeply mourned by his many friends.

STEWART CULIN.

École d'Anthropologie.—The thirty-first year of the École d'Anthropologie at Paris began November 5, 1906. The courses for the year include the following:

M. L. CAPITAN, professor: The Bases of Prehistory. Industry, Art.

M. GEORGES HERVÉ, professor: (1) The Negro Problem in the United States. (2) History of Ethnology in the 18th Century.

M. P.-G. MAHOUEAU, professor: Origin of Man. Our Zoological Neighbors: the Simians and the Anthropoids.

M. L. MANOUVRIER, professor: Psychologic Physiology.

M. ADRIEN DE MORTILLET, professor: Comparative Study of Primitive Industries, Ancient and Modern.

M. G. PAPILLAUT, professor: Societies among Primitive Peoples.

M. FRANZ SCHRADER, professor: The Impulse of the Cosmic Medium and the Evolution of Cosmologic Thought.

M. S. ZABOROWSKI, professor: Europe: Origin of Nations, Languages, Manners. The Mediterranean Shore: Pre-Aryans, Eurafricans.

M. J. HUGUET, adjunct professor: Religion and Superstitions in Ethiopia, the Eastern Coast of Africa, and the Lake Region.

M. E. RABAUD, adjunct professor: Anatomical Bases of Theories Relative to Criminality.

The following complimentary courses will also be given:

M. LE DR R. VERNEAU: The Quaternary Races of Europe. The Negroid Race of Grimaldi and the Race of Cro-Magnon.

M. LE DR R. ANTHONY: The Morphology of the Brain in Man and the Apes.

M. LE DR A. MARIE: Comparative Psychopathology.

M. R. DUSSAUD: Mycenaean Culture in Rhodes and Cyprus.

Joint Meeting of Anthropologists.—The annual meetings of the American Anthropological Association and of the American Folk-Lore Society will be held at Columbia University, New York City, beginning

December 27, 1906, in affiliation with Section H of the American Association for the Advancement of Science. Members are cordially invited to be present and to contribute papers on subjects connected with their respective fields of research. Titles should be sent to Dr George Grant MacCurdy, Secretary of the American Anthropological Association, Yale University Museum, New Haven, Conn.

Exploration of the Station at La Tène. — The Historical Society of the Canton of Neuchâtel has planned a thorough and systematic exploration of the station at La Tène. Work is to be begun in March, 1907, and continued until the entire site has been thoroughly examined. It is expected that several years will be required to complete the work, as it will not be possible to make excavations during the seasons of high water. The last work of any consequence was in 1883, at which time much valuable material was recovered. The estimated cost of the exploration is placed at 20,000 frs., which is to be provided partly by the city of Neuchâtel and the Historical Society, together with a special grant from the Swiss government. All objects discovered during the exploration are to be deposited in the Musée Historique, Neuchâtel.

D. I. B., Jr.

Horatio Nelson Rust. — We regret to record the death, on November 14, 1906, at the age of seventy-eight years, of Horatio Nelson Rust, at his home in South Pasadena, California. Major Rust was the son of Nelson Rust, a Connecticut abolitionist, and was himself the friend and companion of John Brown and a veteran of the Civil War. For many years he had been actively interested in Southwestern archeology and ethnology, and had made important archeological collections, especially in southern California. He was a member of the American Anthropological Association and a contributor to the *American Anthropologist*. His last endeavor of a scientific character is the brief article that appears in the current issue.

Major Rust was born in Amherst, Mass., May 11, 1828, and was educated in the public schools and in Amherst Academy. His early years were spent as a druggist and a farmer in his native state; later he traveled in the interest of several business firms. At the breaking out of the Civil War he offered his services and was assigned to the medical department, serving as acting surgeon in the engagements at City Point and before Petersburg. At the close of the war he settled in Chicago, where he was engaged in commercial pursuits until 1881, when he removed to southern California where he established a ranch that became one of the show places of South Pasadena, being visited by many tourists.

Major Rust was a warm friend of the Mission Indians and did much to alleviate their sufferings. He was interested in educational matters and was largely instrumental in the founding of the Pasadena Public Library, of which he was chosen president. He was twice married—in 1851 to Fidelia Humphrey, who died in 1899, afterward to Miss Hattie S. Elliott. His wife and five children survive him.

George W. H. Stouch, Lieutenant Colonel, U. S. A., retired, was born in Gettysburg, Pa., March 3, 1842, and died in Washington, D. C., November 11, 1906. Shortly after the outbreak of the Civil War, when but nineteen years of age, he enlisted in the 11th U. S. Infantry, was promoted for gallant conduct at Chancellorsville, prostrated later by typhoid fever, seriously wounded at Gettysburg, and came out at the close of the war as a commissioned officer in the 3d U. S. Infantry, to be assigned at once to active duty on the Indian frontier, where he spent most of the remaining years of his life up to his final prostration a few months ago, due directly to his old wound.

The passing away of Colonel Stouch loosens another of the few remaining links which bind the present to the past of the great Western Plains. His personal acquaintance included Colonel William Bent, of Bent's Fort, John S. Smith, the old-time Cheyenne trader, Lone Wolf, Little Raven, Roman Nose, Dull Knife, and a score of other famous chiefs and frontiersmen of forty years ago. He commanded a company of regulars at the great treaty of Medicine Lodge in 1867, the first treaty by which the wild Cheyenne, Kiowa, Arapaho, and Comanche recognized the power of the U. S. Government and consented to come upon reservations. This was perhaps the largest Indian gathering in the history of the Plains, there being about 5,000 Indians in attendance, besides some 600 whites, including commissioners, military, and civilians. The Colonel's description of the defiant entry of the Cheyenne on this occasion was graphic—charging down in military order, every man mounted, painted, and stripped to the G-string, swinging his rifle above his head, with a belt of cartridges around his naked waist and another wrapped in bracelet fashion around his arm. Before a year had passed the Colonel's command was fighting these same Cheyenne along the Kansas frontier. In all these dangers and alarms his young wife was always near his side. Incidental to this campaign was the heroic stand on Arickaree Fork by Colonel (General) Forsyth, who also has passed away within a few weeks, fifty men against five hundred for a whole week until help arrived. In 1894-98 Colonel Stouch acted as agent for the Northern Cheyennes and Crows of Montana. On December 15, 1898, he was put on the retired list for disability. From January 1, 1900, until the beginning of his

final illness in the summer of 1906 he served in the same capacity with the Southern Cheyenne and Arapaho in Oklahoma, being thus brought into daily friendly contact with the chiefs and warriors whom he had formerly met in battle. His honorable record of forty-five years as a soldier is a matter of official history. In his dealings with Indians, both as military officer and as agent, he was sympathetic and firm in exactly the right proportion to command affection and respect. No man in the service understood better the character and customs of the Indian, or could utilize this knowledge to better advantage to produce results. As a man he was consistent and upright, conscientious and exact, kindly and helpful, in all relations of life. He is survived by his widow, a son, and a daughter.

JAMES MOONEY.

THE COURTS have handed down a decision favorable to the University of Rochester, to which Lewis H. Morgan, who died a quarter of a century ago, bequeathed the sum of \$75,000 for the higher education of women. It would seem natural that Mr Morgan's estate should have been bequeathed for the purpose of perpetuating the notable anthropological work to which he devoted his life, save for the fact, which is not generally known, that he lost a brilliant daughter a few years before his own death, a sad occurrence that no doubt determined the purpose of his generous bequest.

ON THE OCCASION of its recent quatercentenary the degree of Doctor of Laws was conferred by the University of Aberdeen on the following, together with many others: J. Deniker, librarian of the Museum of Natural History, Paris; Arthur J. Evans, keeper of the Ashmolean Museum, Oxford; Harald Høffding, professor of philosophy, Copenhagen; Commandatore Rudolfo Lanciani, professor of ancient topography, University of Rome; W. M. Flinders Petrie, professor of Egyptology, University College, London; and Salomon Reinach, professor of archeology, Paris.

THE FOLLOWING GRANTS have been made by the general committee of the British Association for the Advancement of Science for research under the section of Anthropology: Excavations in Crete, £100; Glastonbury lake village, £30; Excavations on Roman sites in Britain, £15; Anthropometric investigations, £17, 17s., 3d.; Age of stone circles, £3; Anthropological photographs, £3, 3s., 6d.

THE FOLLOWING OFFICERS of the California Branch of the American Folk-Lore Society have been elected for 1906-07: *President*, Charles Keeler; *First Vice-president*, John Fryer; *Second Vice-president*, W. F. Bade; *Treasurer*, S. A. Barrett; *Secretary*, A. L. Kroeber; *Councillors*,

Charles F. Lummis, W. C. Mitchell, Mrs Thomas B. Bishop, John E. Matzke, C. Hart Merriam, E. J. Molera.

A CORRECTION: An unfortunate mistake occurs in the footnote on the first page of Miss Breton's account of the International Congress of Anthropology and Prehistoric Archeology, published in the July-September issue of the *American Anthropologist*. The statement that "the mountains rise steeply above the caves," etc., refers to the caves of Baoussé-Roussé near Menton, not to those of Le Moustier.

THE FIRST TWO NUMBERS of Volume I of *The Old North-West Leaflets*, published by Atkinson, Mentzer & Grover, under the auspices of the Chicago History Teachers' Association, consist of "The Last Two Journeys of Father Marquette," by Edwin Erle Sparks, and "Manners and Customs of the Western Indians," by Charles W. Mann.

DR T. MITCHELL PRUDDEN's *On the Great American Plateau: Wanderings among Canyons and Buttes in the Land of the Cliff Dweller and the Indian of To-day* is announced among the fall publications of George P. Putnam's Sons, New York.

DR D. RANDALL-MACIVER, of Oxford, gave a lecture under the auspices of the American Ethnological Society at the American Museum of Natural History, on October 29, on "The Ethnology and Archeology of North and South Africa."

MR LOUIS J. DE MILHAU, A.B. (Harvard, '06), and Mr John W. Hastings, A.B. (Harvard, '05), A.M. (Harvard, '06) have been appointed members of the Peabody Museum staff as ethnologists of the South American Expedition.

MR O. G. LIBBY, secretary of the State Historical Society of North Dakota, at Bismarck, has commenced a preliminary historical survey of the state for the purpose of locating its archeological and historical materials.

THE seventh annual Huxley memorial lecture of the Anthropological Institute of Great Britain was given on November 1 by Professor W. M. Flinders Petrie, F.R.S., on the subject of "Migrations."

DR ARNOLD JACORI, professor of zoology in the School of Forestry at Tharandt, has been appointed director of the Zoological and Ethnological Museum at Dresden, in succession to Dr A. B. Meyer.

PROFESSOR ADOLF FURTWÄGLER has been appointed conservator of the Königl. Antiquarium at Munich, succeeding the late Professor W. von Christ.

DR WILLIAM SEDGWICK, known for his studies of heredity, died in London, October 23, aged eighty-five years.

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